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ABSTRACT

Approximately 4,000 randomly selected Oregon employers were surveyed regarding their training practices and work organization. More than 43% of employers surveyed responded. Among the key survey findings were the following: most Oregon employers initially recruit locally; applicants for jobs in high performance organizations are often rejected because of inadequate math/calculation skills; only 17% of Oregon's work force is employed by firms providing at least half of their employees with at least 20 hours of training annually; only 60% of Oregon employers providing on-the-job training actually designate trainers for trainees and fewer than 40% provide training for trainers; although few firms actually participate in education initiatives, 21% desire to participate; public sector employers are most likely to track/budget for training investment; only 3% of firms surveyed can be considered high performance; and employers with high performance characteristics note more skill deficiencies than does the private sector as a whole. The following were identified as areas on which state policymakers should concentrate: improve high school education, expand life skills training in high school, provide school-to-work transition, and improve professional/technical (vocational) training in high school. (Appended are the following: overview of study methodology, The survey instrument, and 21 tables/figures. Contains 62 references.) (MN)

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Oregon EMPLOYMENT DEPARTMENT

# OREGON EMPLOYERS WORKFORCE DEVELOPMENT SURVEY

August 1993

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Oregon EMPLOYMENT DEPARTMENT

# OREGON EMPLOYERS WORKFORCE DEVELOPMENT SURVEY

August 1993

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OREGON EMPLOYERS WORKFORCE DEVELOPMENT SURVEY

# EXECUTIVE SUMMARY

The economic realities facing employers and workers in Oregon have and will continue to change dramatically. Workers in the current workforce are facing job losses, reductions in work hours, reclassification into lower skill jobs or becoming part of the emerging contingent workforce[1]. All of this is leading to a stagnant economy where the earnings of the workers and the profits of employers are in a state of decline.

These economic and worker dislocations in Oregon are reflected in the following trends:

- High-wage/low-skill jobs are being lost to foreign competition.
- Between 1981 and 1991, over two-thirds of the new jobs in the private sector were in industries having the lowest annual average wages. Without major interventions, current occupational trends show more new jobs being created in lower rather than higher wage occupations.
- Oregon's per capita income has slipped from ninety-five percent of the nation's in 1981 to ninety-two percent in 1991.
- A majority of workforce in-migrants to Oregon reflect higher education/job skill levels.
- Employers are moving to the use of new hires and contingent workers to fill their skill needs rather than training their existing workforce.

To combat this human and economic stagnation, the people of Oregon established a high risk workforce/economic development strategy to have a skilled workforce that would be equal to any in the world by the year 2010. One of the key elements of that strategy was to identify the extent to which Oregon employers were practicing or even aware of, the new types of business practices that were critical to their future economic survival in the international economy. These key elements which had been identified and documented in studies of high performance employer organizations included the following:

- Commitment to customers
- Achievement of goals through flexible processes and use of work teams
- Shared responsibility for quality between managers and workers
- Continuous training and retraining of all workers

If Oregon is to meet its goal of having a skilled workforce equal to any in the world by 2010, it must encourage all employers, both private and public, to introduce these concepts into the workplace.

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[1] Contingent workforce: temporary, part-time, subcontracted and leased employees.

From this point, there are **four possible options** the state can choose among to deal with these major trends. The different options are:

1. **Do nothing** - If this option is chosen, the outcome is simple. It will lead to low-skill/low-wage conditions that will not support the other major goal of improving the standard of living of Oregonians.
2. **Follow a high-wage/low-skill strategy** - This option provides a picture where Oregon will not prosper economically because it cannot compete with other countries on the basis of wages alone.
3. **Adopt a high performance strategy which incorporates workforce development and technology applications** - To implement this option will require a substantial upgrade of the existing workforce's skills. These skills will be key in determining the competitiveness of Oregon in the international economy.
4. **Adopt a high performance strategy which emphasizes the use of automation** - This final option will provide some high-skill/high-wage jobs but many existing and future jobs would be replaced by automated processes. Its possible outcome could be very few high wage workers while many will have no jobs.

From this discussion of the four options, option 3 was the logical choice for the state to adopt for its high-wage/high-skill strategy for workforce development. The types of private and public organizations that choose to pursue this path by adopting the practices of the Total Quality Management (TQM) approach associated with high performance can expect substantial benefits. Among the benefits that have been identified from the research conducted into organizations practicing TQM are these:

- improved employee morale,
- reduced grievances,
- greater efficiency,
- reduced cycle[2] time, and
- improved customer satisfaction.

Employers that invest in their workforce and technology out-perform those who follow any of the other three options identified above. The combination of high skills and technology provides a greater return on investment.

The major threats posed to the state's future economic and social well-being have been identified. However, solutions have been discussed to solve this dilemma. The one missing key element was the knowledge as to where the state's employers were in their practice of high performance workplace practices. Without this critical piece of information, it would be impossible for the state to devise major strategies to accomplish the goal of an international competitive workforce by 2010. The need for that missing piece of critical

[2]Cycle time: The amount of time it takes to complete a particular task. Shortening the cycle times of critical functions is a source of competitive advantage and a key quality-improvement objective.

information was the stimulus for two employer surveys recently conducted by the Employment Division and the Economic Development Department. The information generated from the second of these surveys forms the basis for the following discussion of the key findings. This survey was a mail survey of approximately 4,000 employers with a response rate of over forty-three percent.

## KEY FINDINGS - HIGH PERFORMANCE MAIL SURVEY

**Most Oregon employers recruit locally at first, but applicants are rejected from private sector openings because they:**

- are not adaptable to the work environment,
- have inadequate verbal communication skills,
- have no work experience, and
- have inadequate life skills[3].

**High performance organizations tend to stress technical skills so that applicants are rejected more often because of inadequate math/ calculation skills.**

**In the public sector, applicants are rejected because they have:**

- inadequate verbal/communication skills,
- no work experience,
- inadequate reading/writing skills, and
- inadequate computer/technical skills.

**Only 17% of the workforce is employed by firms which provide at least half of their employees 20 or more hours of training a year.**

**Most of Oregon's employers provide on the job training. However,**

- only 60% of them actually identify a person to act as a trainer for the trainee, and
- fewer still, (35% of private firms and 40% of public firms), provide training for the trainers.

**Most Oregon employers provide formal training.**

- Managers and those in technical/professional occupations receive:
  - the most formal training, and
  - more balanced and varied training.
- Laborers, production and construction workers (the bulk of the private sector labor force) receive:
  - mostly safety training, and
  - little other training.
- Firms most often use:
  - in-house training,
  - outside training vendors/consultants, and
  - industry/trade associations.

---

[3] Life skills: set of skills including time and attendence, following instructions, anger management, social skills, character development, and adaptability to the workplace.

- Firms occasionally use these resources:
  - Chambers of Commerce,
  - Labor unions,
  - Public job training programs, and
  - Apprenticeship and private vocational schools.

**While only a small percentage of firms actually participate in education initiatives, approximately 21% indicated that they would like to participate.**

- Private sector employers expressed interest in:
  - structured work experience for high schools students,
  - summer jobs,
  - on-site training for high school students, and
  - Community College work study cooperatives.
- Public sector employers expressed interest in:
  - structured work experience,
  - Community College work study cooperatives,
  - summer jobs, and
  - mentor programs.

**Public sector employers are much more likely than their private sector counterparts to track and budget for training investment.**

- In the private sector:
  - 50% of the companies track training expenses,
  - 28% have a formal training budget, and
  - 19% use some measure to develop their training budget.
- In the public sector:
  - 77% of the employers track training expenses,
  - 67% have a formal training budget, and
  - 25% use some measure to develop their training budget.

**The public sector and large private sector firms are more heavily involved in implementing new technology than the small private sector employers.**

- Technology affects all occupations.

**How many firms exhibit high performance characteristics?**

- The mail survey found that only 3% can be considered high performance.
- Firms exhibiting high performance characteristics are present in a number of industrial sectors.

**Based on the mail survey, employers with high performance characteristics noted more skill deficiencies than did the private sector as a whole.**

**Studies by other states indicate that many firms do not realize they have skill deficiencies until they adopt new technology or try to make the change to a high performance work structure. The presence of these deficiencies in the existing workforce can retard any move to high performance work practices.**

- The four priorities that private and public sector employers feel the state should concentrate on are as follows:
  - Improve high school education,
  - Expand life skills training in high school,
  - Provide a school-to-work transition, and
  - Improve professional/technical (vocational) training in high school.

## CONCLUSIONS

Based on the results of this survey, Oregon employers are very similar in their workplace characteristics to employers in other parts of the United States. All of these states are faced with the same international economic dilemma confronting Oregon and are attempting to devise workforce and economic development strategies to alter these trends. New baseline data on where employers are in implementing high performance workplace practices will allow the state to develop new strategies for achieving the international competitive workforce by 2010.

While Oregon employers demonstrate much agreement on what the state's current four main priorities should be for the existing work environment, high performance workplaces will be needed to compete in the future international economy. The types of skills that will be needed by workers in this environment will include knowledge based skills, particularly calculation and math. If these types of workers are in short supply, high performance organizations will experience skill deficiencies in their workforce. Therefore, both the existing workforce and new entrants must be able to:

- work in teams,
- use new technology, and
- acquire and apply basic reading, writing and math skills.

The training and retraining of Oregon's workforce will require a massive effort from both the private and public sectors. Oregon's educational reform effort offers the promise of improving the skills of new labor market entrants. The new strategies that must be devised are those that serve the eighty-five percent of today's workforce that will be working in the year 2000. These strategies will involve a major cultural change that will move the state from the existing workplace structure to a high performance structure. None of this can be accomplished by government, business, education, or labor organizations acting alone. Partnerships must be formed and resources and incentives must be identified that allow this transition to take place.

# INTRODUCTION

The Oregon Employer Workforce Development Survey was a joint effort between the Oregon Department of Economic Development and the Employment Division. It is one part of a two part study. (The second part was a focus group analysis of 100 randomly selected firms.)[1] The survey used in the Workforce Development part contained 27 questions relating to the workplace, and responses were received from 1,633 Oregon firms (83% private, 17% public). Survey participants were selected randomly based on industrial activity, employment size (small 5-50, medium 51-100, large 100+) and geographic location. The methodology used to develop the questionnaire and select the sample is discussed in Appendix A.

The survey was designed to provide baseline information about employers' attitudes on training and work practices. Baseline information will be valuable in measuring Oregon's progress towards its occupational, education, and training Benchmarks. The results will also help policy makers decide how best to spend federal training funds and identify areas where policy and program changes can be made to more effectively use limited resources.

In reading this report, the following should be borne in mind:

1. As with any social research, the survey does not represent all work environments; instead, it represents Oregon specific information.
2. The structure of the workplace is constantly changing; this report presents only a snapshot in time.
3. This is the first survey of its type that has been undertaken in Oregon. Therefore, the conclusions and projections contained in this report may well change as more information is collected over coming years.

Forty-three percent of the employers surveyed responded. A high response rate from an inadvertent over-sampling of the public sector requires that the public and private sectors be discussed separately.

Nevertheless, based on the size of the response and the fact that the respondent characteristics closely reflect the sample's size distribution, industry distribution and geographic location, the responses are representative of and conclusions applicable to all employers with five or more employees. A conscious decision was made to analyze firms based on their actual location, even if the parent company or head office was located in a different community. Regional planning groups

[1] The results of the focus group can be found in the detail report - "Focus Group Study of Oregon Employers" by the Reed Company. A summary of the focus group and mail survey results can also be found in the report "Oregon Works" by Mimi Maduro. Copies of Oregon Works can be obtained from the Oregon Department of Economic Development.



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will need to know the attitudes and resources available in their geographic area, even if those attitudes or resources are determined by a parent company's policies.

Footnotes are used to provide definitions for important terms. In most instances, specific definitions were provided in the survey and these are noted as such. In other instances, the survey participant decided what the term or phrase meant. However, for the reader's convenience, generally accepted definitions will be provided. A glossary of terms is also provided.

A copy of the survey is reproduced in Appendix B. Each survey question in the text is numbered for easy reference to the questionnaire.

CHAPTER 1

# THE DILEMMA
# OREGON'S ECONOMIC BACKDROP

## Changes in the World Economy

Any discussion of the attitudes of Oregon's employers on training and management practices needs to be framed in the broader context of the United States and Oregon economies. This is important for three reasons:

- Both socially and economically, Oregon is affected by the forces which are impacting the United States as a whole.
- Oregon is experiencing many of the same problems as other states and the nation. An understanding of what others are saying and doing about those problems can help define and frame Oregon's response.
- Having said this, Oregon is still somewhat unique; consequently, an understanding of the U.S. and Oregon economies provides a backdrop against which we can contrast the survey results and identify commonalities and unique characteristics.

There is an increasing awareness that the global economy is going to require substantial changes in the way the U.S. economy and workplace structure are viewed. Economic competition is fierce and the focus has changed from producing goods for the lowest price to more complicated issues like quality, customization, and cycle time[1].

A review of the research literature has produced the following key observations on America's ability to compete and survive in the international economic environment.

- Competitive survival today and tomorrow will be driven by having a quality product and process. (Memirow, Business Week 1992, pg. 63)
- Consumers in today's market demand products and services that encompass quality, variety, customization, convenience, timeliness and mass production prices. Failure to meet these demands will take business away from American industries and move it elsewhere. (Carneval, 1992, pg. 2)

Within the workplace, foreign competitors have demonstrated that with an empowered, educated, and highly motivated workforce, the layers of an organization can be reduced. This not only reduces costs, but allows greater organizational flexibility. The combination of empowered workers and greater flexibility has allowed reduction in the time necessary to complete related job tasks, improved product quality, customized products, and provided products at mass production prices.

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[1] Cycle time: The amount of time it takes to complete a particular task. Shortening the cycle times of critical functions is a source of competitive advantage and a key quality-improvement objective.

With these types of leaner organizational structures, countries like Japan can build cars and other products faster.

For instance, in Japan it takes 1.7 million person-hours to design a car from the ground up and bring out all-new versions every 4.5 years. In America and Europe, this same process requires approximately 3 million person-hours to design the car and another eight years to introduce new versions of the automobile. This long lead time often creates situations for American industries where their designs and technology have gone stale. (Business Week/Quality Edition. pp. 72-73)

Improvements like those mentioned above have allowed foreign competition to capture increasing market shares and in some cases drive American companies out of the market altogether. A Massachusetts Institute of Technology (MIT) study entitled "Made In America" (Dertouzos et al., 1989) has documented this loss of competitiveness in a number of manufacturing sectors. The most outstanding example in this study is the loss of leadership by American companies in the semiconductor industry. This loss occurred over a period of ten years and forced American companies to lose their leadership role or withdraw from the market entirely.

The increased competition for America's international and domestic markets has resulted in the loss of many high-wage jobs. Secondary impacts from the loss of these jobs in the primary industry groups have had ripple effects throughout other sectors of the national and state economies. These effects have caused additional job reductions in the industries that provide products and services to the firms and workers in the primary sectors.

## Earnings Implications and Job Creation - Oregon and the Nation

Restructuring of major parts of the national and state economies due to the rapidly emerging international economy has tremendous implications for the current and future workforces in Oregon and the United States. Recent information highlights the decline in the purchasing power of the American worker. From 1979 through 1989 the average weekly wage of these workers, when adjusted for inflation, fell from $409.13 to $398.88. In Oregon, the average weekly wage, adjusted for inflation, dropped from $254.03 to $228.46, much faster than the nation's.

During the same 10-year period (1979-1989), selected industries in Oregon and the United States maintained their capacity for creating large numbers of jobs. At the national level there were 13.6 million full-time jobs created while Oregon employers in these sectors created approximately 166,000 jobs. The problem, however, was that about 35% of these jobs were at or below the 1989 official poverty level of $13,000 for a family of four when adjusted for inflation. Census data from 1979 to 1989 also confirms this trend of more full-time workers being employed in low-wage jobs. From

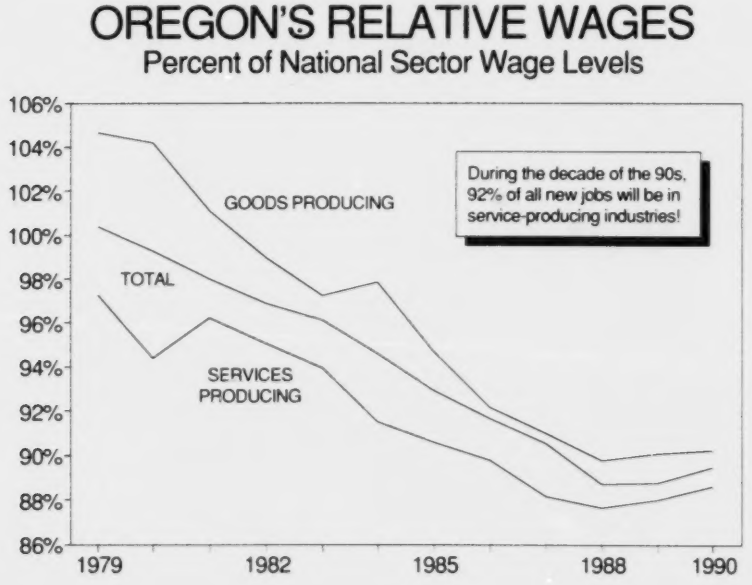
1979 through 1989, the percent of workers employed in full-time low-wage jobs jumped from 18.9% to 25.7% in the United States.

For the past decade, industry sector wages in Oregon relative to their national counterparts have been declining, particularly in the goods producing sector. Since 1979, there has been a decline of approximately 15% in Oregon's goods producing sector. Some of this decline is attributable to job losses in the natural resource-based industries. The loss in purchasing power of these wages is attributable to four factors:

- Slow wage growth due to the recession of the early 1980s.
- Wage concessions, brought about by the recession and increased economic competition.
- Occupational shifts in and between industries.
- The net loss of low-skilled/high-wage jobs.

**Figure 1** shows that over the past eleven years, goods producing industries have paid higher wages relative to their national counterparts than has the services producing sector. However, the trend of faster wage growth in the services sector has narrowed the gap between services wages and those in the goods producing section.

**Figure 1**




From 1988 through 1991, a total of 94,600 wage and salary jobs were added to the state's job rolls. Ninety percent of these jobs were in the services producing sector. An analysis of this job growth in the private sector shows that 25% percent of the industries with the lowest wages

created over 42% of the new jobs. The next lowest 25% of the industries contributed another 24% to this job growth. Thus, from 1988 through 1991, over two-thirds of the new jobs were created in industries having the lowest average annual wages.

Finally, all of this loss of high-wage/low-skilled jobs, reductions of hourly wages, rapid growth in lower paying jobs and the large increase in the older retired population have all combined for a dramatic effect on a key measure of these state's present and future economic health. That indicator is the per capita income of the state. **Figure 2** shows that Oregon's per capita income has fallen from being equal to the United States average in 1979-80 to 92% of the U.S. figure by 1992. While the per capita is projected to grow through 1997, it will still be below that of the nation as a whole. In addition, unless current trends change, the gap between the Oregon and United States averages will continue to widen.

**Figure 2**

## Job Skill and Educational Attainment Implication - Oregon and the Nation

Growing international economic competition has important implications to Oregon and the United States for the types of jobs that will be created. There is increasing evidence that rapid changes in workplace practices and the accelerating adoption of technology by employers will dramatically raise the educational and skill requirements for all job categories in the

nation. A study, **Workforce 2000: Work and Workers for the 21st Century**, produced by the Hudson Institute, found that these requirements for all occupations are rising in the United States. According to the study, the median level of education will rise from 12.8 to 13.5 years by the year 2000. Consequently, more basic skills and more education will be needed for these occupations. Table 1 shows that for the fastest growing occupations, higher levels of language, math, and reading skills will be required. (Johnston and Packer 1987 pp. 98-99).

**Table 1**

**FAST-GROWING JOBS REQUIRE MORE LANGUAGE, MATH, AND REASONING SKILLS[2]**

| | Current Jobs | Fast Growing | Slowly Growing | Declining |
|---|---|---|---|---|
| Language Rating | 3.1 | 3.8 | 2.7 | 1.9 |
| Math Rating | 2.6 | 3.1 | 2.3 | 1.6 |
| Reading Rating | 3.5 | 4.2 | 3.2 | 2.6 |

Source: WORKFORCE 2000, Table 3-8, pg.98-99, 1987

There are two major forces that impact on the number of types of jobs that will be available to the current and future workers in Oregon. These forces include changes in the industrial mix and the changing skill requirements in existing and future occupations.

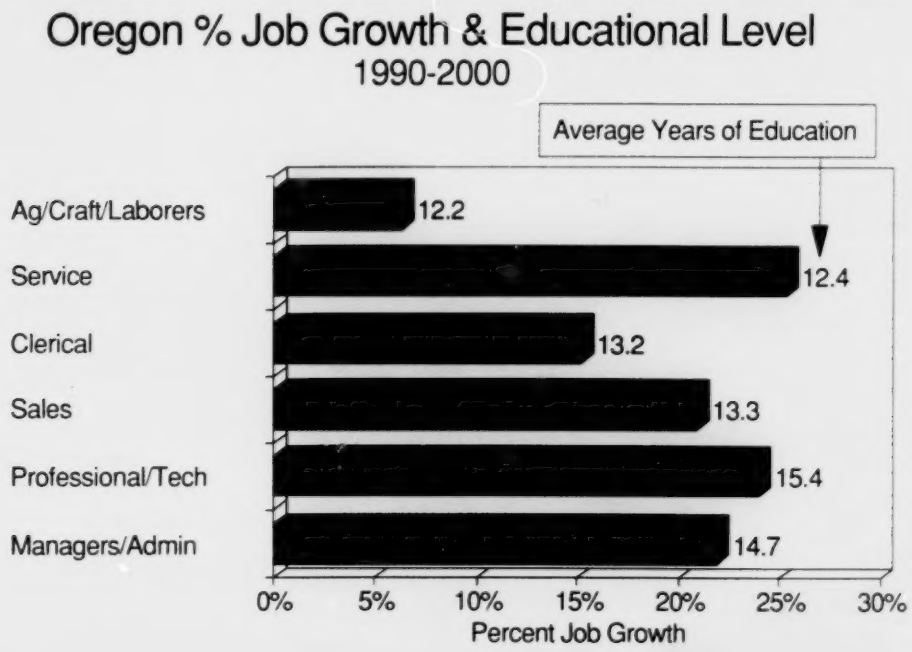
From 1981 to 1991 total wage and salary employment in the state grew by 232,000, reaching 1,250,600 by 1991. Of this increase, goods producing jobs accounted for 22,700, or 10%. Services producing jobs comprised the other 90%. Similarly, the state's long-term economic forecast projects another 185,000 jobs being created by 1997, with 95% of these in the service producing industries. This mixture of past and future industrial growth has and will change the wage mix for the types of jobs that have been and will be created.

It is easy to focus strictly on the employment growth disparity in the goods and services sectors. This analysis, however, ignores the more subtle changes occurring in the changing occupational skills in the workplace. Analysis of these changes between 1979 and 1986 shows the most rapid growth occurring in the high-skill/high-wage jobs in Oregon. The shift during this period towards professional/technical occupations and away from the mass production jobs has been very dramatic. This trend as projected is expected to continue through the year 2000 with the creation of approximately 86,000 more high-skill/high-wage jobs. Approximately 89,000 new jobs are projected to be created in the low-wage/low-skilled category.

[2] Reasoning Skills: According to the analysis, all occupations can be rated on a 1-6 skill requirement scale, where 6 is the highest rating. For instance, a job rated level 6 in math would require the use of advanced calculus, econometrics, or statistical probabilities. A level 2 on math would require addition, subtraction, multiplication and division, as well as the ability to compute percentages and ratios and interpret graphs.

**Figure 3** reflects the expected job growth during 1990-2000 for major occupational groups. The fastest growing group is expected to be services followed closely by the professional/technical, management/ administrative, and sales. The chart also indicates the rising educational/ skill level for each of the occupational groups.

**Figure 3**




## Challenges - Filling the Workforce Skill Gap

Analysis of the mix of skills needed in the workplace indicates the complexity of the changing economy. It points out that, during the 1980s, the major problem was both the loss of high-wage/low-skilled jobs and the loss of wages in existing jobs, the creation of new jobs was not the problem. However, the analysis of both the changing industry mix and changing occupational skills highlights the problems low-skilled workers will have in the emerging economy. Regardless of the number of high-wage jobs created, more workers are becoming stuck in low-wage/low-skill jobs.

The globalization of the labor market has brought strong and immediate focus to the problems Oregon and the United States will have competing in this international arena. Some of the trends and international

comparisons of America's workers with other countries show:

- The loss of low-skilled/high-wage jobs to other countries having equally skilled workforces being paid much lower wages.
- Grade schools and high schools in the United States performing much lower on the math and reading comprehension tests than those of the other industrialized nations in the world.
- Foreign students comprising more than half of the Ph.D.'s in engineering, math, and economics and over forty percent of the doctorates in computer science and physics being awarded to students by American universities and colleges. (Council on Competitiveness, 1991 issue on Challenges).

Lastly, the filling of this gap in Oregon and the United States can be met by in-migration of skilled workers from other states or other countries or by improving the skills of the resident population. The first two of these approaches is currently being used by Oregon to meet the demands for skilled workers. Table 2 shows some inclination of this because it reflects the top ten positions that Oregon employers have recruited for on an international basis. Additionally, the 1992 household survey conducted in Oregon pointed out that better than 60% of the new in-migrants to the state had post high school educations and their median family incomes were greater than $30,000.

**Table 2**

**Top 10 Oregon Occupations Requested Under Alien Certification Program**

| Occupation Title | Rank, post 1990 | Rank, pre 1990 |
|---|---|---|
| Software Engineer | 1 | 1 |
| Faculty Member | 2 | na |
| Electronics Engineer | 3 | 2 |
| Research Associate/Assistant | 4 | na |
| Chef/Cook | 5 | 4 |
| Chemist/Biochemist | 6 | 6 |
| Physicians | 7 | 5 |
| Chemical Engineer | 8 | na |
| Sales Manager/Supervisor | 9 | 7 |
| Programmer Analyst | 10 | 8 |

The challenges facing the state of Oregon given the trends mentioned above are to devise a workforce development strategy that will enhance not only the skills of its students but also those of its existing workforce. That strategy has been defined as being one that changes the existing organizational structure of traditional workplaces to one that encompasses the principles and practices of Total Quality Management (TQM) or high performance work organizations. This type of structure

depends on the skills of its front-line workers for success. The high performance structure is one that is used by other countries, most notably Japan and Germany, to compete very successfully in the international economy.

In his book, The Work of Nations, Robert Reich argues that for the United States to remain competitive, new organizational structures must be adopted by American businesses. These new organizational structures must include fewer layers of management, more flexibility in production processes, and interconnections with the global environment. The keys to the competitive success of a country will be the skills of its workforce and a modern infrastructure. Such an environment will lead to a continuous improvement in the skills of the workforce with jobs paying higher wages, thus, raising the standard of living for the resident population.

National studies, other states' surveys, and the Oregon Workforce Development survey indicate that a number of problems are likely to be encountered as Oregon businesses shift to this new structure. In its report America's Choice: High-Skill or Low-Wages, the Commission On the Skills of the American Workforce, found that most employers do not expect their skill requirements to change.

Despite the widespread presumption that advancing technology and the evolving service economy will create jobs demanding higher skills, only 5% of the employers were concerned about a skills shortage. Similar studies conducted by the states of Wisconsin (A Worldclass Workforce for Wisconsin) and Arkansas (Lite Study) found similar results. These studies, as well as the Oregon Workforce Development Survey, show that for those firms that were implementing or currently using the new high performance practices, skill deficiencies were highlighted in their existing workforces.

## Oregon's Options - High-Skill/High-Wage or Low-Skill/Low-Wage?

A review of the literature and studies related to workforce development reveals four major policy options. They are the following:

1. Do nothing and let existing trends play themselves out.
2. Follow a high-wage/low-skill policy.
3. Adopt a high performance strategy which incorporates workforce development and technology applications.
4. Adopt a high performance strategy which emphasizes the use of automation.

The first two options generally do not call for concerted efforts to change the existing organizational structure; thus, the contrast between the existing organizational structure (Taylorism) and the new structure, high performance or Total Quality Management (TQM), will be left until the high performance/workforce development/technology application is

discussed in detail. In addition, because this option is going to require an upgrading of the skills of the existing workforce, some time will be spent discussing the economic benefits of this option.

**Policy Option 1: Do nothing and let existing trends play themselves out**

For Oregon, the existing trends could lead to a "have" and "have not" split in the workforce. The majority of the new jobs are expected to be created in the lower-paying service-producing sector and in occupations considered low-wage. This scenario would create an economic environment where:

- Competition for the reduced number of high-wage/high-skill jobs will be fierce because the supply of skilled workers from the resident workforce and in-migrants will exceed the number of jobs available.
- The oversupply of skilled workers for the higher skilled jobs will keep wage increases low.
- Workers with a high school or less education will be forced to compete for the low-skill/low-wage jobs, many of them ending up in the expanding contingent or part-time workforce.
- Fewer high-skill/high-wage jobs will mean reduced public revenues resulting in a decline in the public services associated with the liveability of Oregon.

The tremendous potential impact of following this last option is highlighted in a recent study released by the Joint Legislative Committee on Trade and Economic Development. It notes that in Oregon, a family income of $30,000 or greater is needed to pay the same or greater amount of per capita taxes as the state spends on services. The report states that Oregon has added 300,000 jobs, and nearly a quarter of a million new residents, since 1982 and that total state and local revenues have increased in each successive year. But the cost of providing public services to this larger population has risen as well. As low-wage and low-income workers pay less in taxes than the average cost of public services, this will effectively squeeze government budgets.

By almost any socio-economic indicator, Oregon is currently in a slow downward spiral. The spiral will be further aggravated by the increasing globalization of the economy and the loss of low-skill/high-wage jobs to other counties.

**Policy Option 2: Follow a high-wage/low-skill policy**

A report to the Oregon Legislative Committee on Trade and Economic Development entitled Better Jobs: Oregon's Economic Challenge for the Nineties examines the viability of this option for Oregon. The report identifies that the global integration of the economy means that a low-skill workforce can easily be moved to whatever corner of the globe is most convenient and politically stable. Oregon is replete with examples where low-skill/high-wage jobs have migrated to foreign countries. In

two instances (Caterpillar Corporation and Onyx/IMI Corporation), a total of 950 low-high-wage jobs moved from Oregon to other countries during the 1980s. The report's final conclusions are that eventually these types of jobs will not appear in Oregon as companies establish their initial mass production operations directly in the low-wage countries. The report concludes that this type of low-skill/high-wage strategy is not an option for the state.

**Policy Options 3 and 4: Adopt a high performance strategy which combines Workforce Development/Technology Application**

Just as it is dramatic to focus on the differences in high and low-wage industries, it is even more dramatic to contrast low-skill with high-skill jobs. Unfortunately, as noted earlier when discussing high performance organizations, there are really two high-skill choices. The first choice is to reorganize work processes to substitute technology for workers. The second choice seeks to compete economically by enhancing human capabilities which improve:

- making fine perceptual discrimination,
- making inferences from experience,
- reasoning,
- making fine judgments,
- coping with unforeseen events, and
- acting as distinct from rote responses.

If automation is the part of this option that is selected, a vision that occurs is one of a computer-integrated factory in which human labor is replaced with automated technology. However, research on flexible manufacturing systems (Ramachandran Jaikumar, Best 1990 pg. 272) which use this type of technology points out that the ability of the worker to use the technology effectively makes the difference. Jailkumar concludes that the comparison is not between computer-integrated manufacturing and mass production, but between a skill-based factory that uses computers and a technology-based factory that seeks to eliminate labor. Other studies of the United States automobile industry showed that for the two largest firms (Ford and Chrysler) that invested in their workforces as well as technology, productivity rose much more rapidly than for the one (General Motors) that just invested in technology. (Kolberg and Smith, Rebuilding America's Workforce, pg. 36)

In short, full automation is not as productive and profitable an option in the long run as a highly-skilled workforce using the latest technology. Moreover, this option, while it creates high-wage jobs, seeks to eliminate the human worker from as much of the production process as possible. It, therefore, reduces the workforce and creates the possibility of a "have" and "have not" population.

## Oregon's Choice - High Performance/High-Skill/High-Wage

Given the recommendations by the America's Choice report and other research studies, the state of Oregon has opted to adopt the high-skill/ high-wage strategy. By making this choice, the state is striving for public and private organizations that are characterized as:

- reducing bureaucracy and layers of middle management
- empowering front-line workers to apply judgment and decision-making rather than following rote, detailed processes.

These desired characteristics are further amplified by the attributes identified by the Massachusetts Institute of Technology in its study Made In America. The attributes they found in American manufacturing firms that competed successfully in the international economy were:

1. A focus on simultaneous improvement in cost, quality, and delivery of products and services.
2. A closer link with the customer.
3. A closer relationship and more interaction with suppliers.
4. Effective use of technology.
5. Less hierarchical and compartmentalized organizations which allow greater flexibility.
6. Human resource policies that promote continuous learning, teamwork, participation, and flexibility.

All of the factors mentioned above about high performance organizations speak to one overriding concept: "Quality".

Recognizing that quality has become a symbol of international competitiveness, the United States Congress in 1985 created the Malcolm Balderidge National Quality Award. The award is designed to recognize those private sector firms which have demonstrated superior achievement in restructuring their processes and activities in order to become high performance organizations practicing Total Quality Management. For the companies who have received this award, the benefits of TQM have been improved employee relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability. Other studies (Kotter and Heskett 1992 pg. 11) document similar results being achieved in other firms that demonstrate these high performance characteristics.

With evidence mounting about the benefits of adopting a high performance organizational model, two obvious questions are: how many firms have adopted this model and, if firms haven't, why not? Tentative answers to these two questions have been obtained from a number of studies. Some of the results range from:

- 5% nationally (America's Choice)
- 20% in Wisconsin's manufacturing industries (A World Class Workforce in Wisconsin, April 1991)
- 35% of Arkansas's manufacturing industries

Results from the employer survey conducted as part of this study show Oregon's percentage of high performance organizations across all industry sectors as approximately 3%.

The reason that so few firms in Oregon and at the national level exhibit high performance characteristics is that the organizational structure on which most of them are built is well established and, until recently, seemed to work well. Commonly called Taylorism, this organizational philosophy is built around a multi-layered organization. Some of the attributes include the following:

- supervisors have responsibility for a few people,
- work is narrowly defined and controlled by rigid rules and regulations,
- employees on the front line are not allowed to make decisions, and
- decisions are considered the responsibility of management.

It is this type of organizational structure that has led Konosuke Matsuchita, founder of Matsushita Electric Industrial Company of Japan, to foresee the downfall of American industry because of an inability to change from this management style (Michael Best 1990, pg. 1).

The dilemma facing Oregon and the nation is that the old technique of downsizing used by American firms does not work anymore. This technique is no longer being driven by recessionary events. Instead, the new forces causing the most recent layoffs of American workers are the level of international competition and the need to reduce costs. This has been a dramatic change from historical patterns of layoffs where the workers laid off were blue collar production workers. Most of the latest layoffs have resulted in larger percentages of white collar and middle management employees becoming unemployed. Thus, in order to maintain a short term competitive position, firms may be impairing their long term prospects. In the process, they are also reducing the number of high-skill/high-wage jobs.

The major dilemma from all of this analysis is how do Oregon employers make the transition to a high performance work structure and upgrade the skills of their existing workforce. The assistance must come from partnerships formed between the private and public sectors and the Oregon public.

## Summary

Oregon is currently experiencing the same types of economic pressures as the nation. High-skill/high-wage jobs are being lost to foreign competition. The economic forecast is for the same trends to continue.

While four policy options appear available to private and public decision makers, all of the research speaks to only one option being acceptable if the state is to achieve its goals of having a high-skill/high-wage economy.

The organizational structure associated with this type of economy is high performance organizations using Total Quality Management workplace practices. Organizations deciding to go this direction will have to make major changes in their organizational structure and management attitudes. When they make the transition, major skill deficiencies will appear in large segments of their existing workforce. Since 85% of the existing workforce will be employed in the year 2000, any move to the new organizational structure will be a massive undertaking.

To help the firms make this change to the high performance workplace and upgrade the skills of their existing workforce, the State of Oregon has adopted the following strategies through its Workforce Quality Council:

- Direct resources for productivity improvement to retain the high wage jobs in Oregon's basic industries.
- Target existing firms with growth potential irrespective of industry trends.
- Train the existing current workforce to raise the general level of competency.
- Provide training incentives to workers and employers to do it themselves.
- Direct resources toward the needs of small and medium sized employers through:
    - organizing training consortiums to improve basic and job related skills of employees.
    - increased support of international product marketing efforts.
    - more outreach from the universities and large employers to introduce new technology to the workplace.
    - better access to financial resources for expansion and equipment modernization processes.
- Identify skill sets which link programs of training with employment, education, training and job placement programs.
- Provide identification, information, and training on high performance workplace practices to all interested firms.
- Assist Oregon industries with identification and access to international markets for their products.

It is within this economic environment and national backdrop that the Oregon employers survey was conducted and the high-skill/high-wage option was chosen by the state. What follows is an analysis of the results of this survey.

CHAPTER 2

# EMPLOYER NEEDS AND HIRING PRACTICES

## Priorities

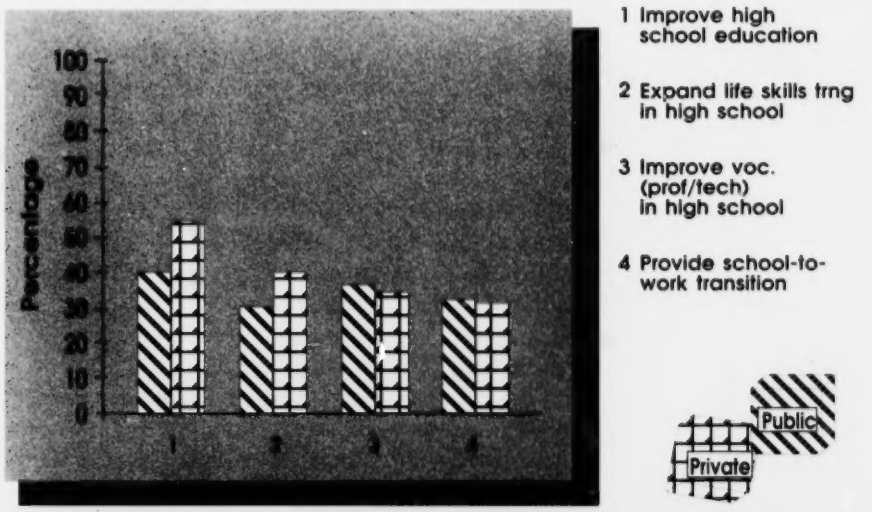
According to responses to the Oregon Employers' Workforce Development Survey, the most important actions the state can be taking are those which improve the job skills of non-managerial workers *(Question 26)*. In both the public and private sectors, the top four priorities for the state are the same -- only the order changes.

At the top of both lists is "improve high school education". Fifty-five percent of the private and 40% of the public firms rated this as the top priority *(see Figure 4)*. The other three priorities are:

- expand life skill[1] training in high school,
- improve professional/technical (vocational) training in high school, and
- provide school-to-work transition[2].

**Figure 4**

### Priorities to Improve Job Skills of Non-Managerial Workers




[1] Life skills as defined in the survey means a set of skills including time and attendance, following instructions, anger management, social skills, character development, and adaptability to workplace.

[2] The process of easing high school students into the workforce by linking them up with employers and providing them with work experience.



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Looking at the responses by size of firm:

- small firms rank the priorities just the same as the private sector as a whole,
- medium and large firms rank "improve professional/technical (vocational) training" as their second priority,
- large firms rank "expand life skills training" equally with "provide successful transition from school to work".

In all cases, the four main priorities are clearly more important than all other options.

The high priority placed upon the quality of high school education is a consistent theme throughout the responses. This perception appears consistent with the attitudes of the general public. A recent survey conducted for the Oregon Business Council, entitled, "Oregon Values and Beliefs," finds that approximately 80% of the 1,361 Oregonians who responded feel major changes are needed in the public education system. Sixty-two percent of the parents and forty-five percent of non-parents feel major change is needed in their local school. The curriculum changes favored are:

- higher standards,
- change or update teaching methods,
- more vocational/technical training,
- more math and science,
- more academics/less extra-curricular activities, and
- more basics.

When asked "Overall, how good a job do you think Oregon is doing in providing Oregonians with the skills necessary to compete in a global economy?", over 45% characterized it as "very bad" or "somewhat bad." Only a little over 18% felt Oregon was doing a "somewhat good" or "very good" job in providing Oregonians with the skills necessary to compete in a global economy.

On the other hand, both the general public and employers rate education as a high priority for the state. The Oregon Values survey finds Oregonians rank education and skill development third, behind family and career, and job and economic security. Oregon employers give high priority to school-to-work transition. This high ranking, and the high priority given to improvement of professional/technical (vocational) training, indicates a willingness on the part of employers to work with the schools to place students. In fact, 21% of all employers *(Question 24)* would like to participate in some type of educational initiative, while 26% of the private employers have made some type of donation to an educational organization in the past three years *(Question 25)*.

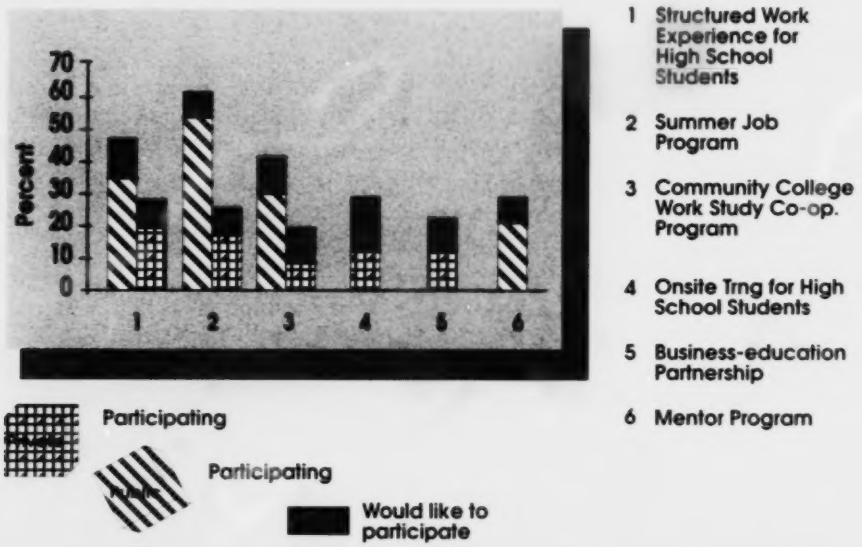
**Figure 5** shows the educational priorities of those firms currently participating and those who would like to participate in education

initiatives. The initiatives the private sector shows greatest interest in are:

- structured work experience for high school students,
- summer jobs,
- on site training for high school students, and
- community college work study cooperatives.

Figure 5

## Employer Participation in Education Initiatives




The initiatives public sector organizations show greatest interest in are:

- structured work experience,
- community college work study cooperatives,
- summer jobs, and
- mentor programs.

A high school student should be encouraged by the potential of gaining work experience. Also encouraging are the hiring practices identified as preferences by firms in Oregon *(Question 15)*. Eighty-one percent of private firms and 74% of public organizations look locally to recruit qualified people. In addition, 54% of the private sector firms will hire a less qualified person and train them. The public sector's second preference (67%) is to recruit qualified employees from other parts of the state. The third strategy for both is to retain and promote existing employees.



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## Why Job Applicants Are Rejected

The private and public sector responses as to why applicants for non-managerial positions are rejected vary *(Question 16)*. The private sector's main reason for rejecting an applicant is that "the candidate will not adapt to the work environment." In contrast, the public sector's chief reason for rejecting an applicant is "inadequate verbal communication skills".

A lack of verbal communication skills is number two on the private sector's list of reasons for rejecting applicants. The other common reason for rejection by both sectors is "no work experience." The public sector has two other reasons that are not highly ranked in the private sector: "inadequate reading/writing skills" and "inadequate computer/technical skills".

Poor calculation skills is seldom or never a reason for rejecting an applicant for private sector firms. While the high performance (3%) group follows the same trend as all private firms for the top three reasons for rejection, they rate "inadequate calculation skills" as number four. This reason is rated higher than "inadequate life skills", which is the number four reason for all private firms.

Regardless of sector or whether the firm exhibits high performance characteristics or not, not having a General Education Diploma or High School Diploma is never or seldom a reason for rejecting applicants for 73% of the private and 61% of the public firms. Of the 1,471 respondents to this question, not one indicated that they would reject an applicant for "no high school diploma" only. This suggests that other reasons for rejection were given greater weight.

## Skill Standards And Hiring Practices

Formal skill standards *(Question 22)* are used by 56% of the private sector respondents. Thirty-one percent have written standards, 24% have unwritten standards, and 45% have no skill standards at all.

In the public sector, nearly two-thirds have written standards, 5% have unwritten standards, and 30% have no skill standards at all.

Analysis indicates that the use of skill standards varies with firm size. The larger the organization the greater the likelihood that it has written skill standards.

In the private sector, 66% of those reporting that they have written skill standards indicate that these are based on general industry standards. Few (14%) have actually participated in helping to set the standards.

This trend is similar in the public sector. Sixty-four percent of those reporting that they have written standards indicate that these are based on industry standards. Only 29% participate in development of the standards.

Generally, employers do not indicate a problem with recruitment and hiring *(Question 14)*, although some trends are apparent.

- Professional/technical positions are the most difficult to recruit and hire for.
- Small private employers generally have more problems recruiting and hiring than medium and large size companies.
- Across the board, the public sector reports less difficulty in recruiting and hiring qualified employees than the private sector.

The average age of an entry level worker for a full-time position is 27 in the private sector. Average age in the public sector is slightly higher at 29.

## Employee Benefits

As to the types of benefits provided by employers *(Question 21)*, management employees generally receive 3-6% higher non-salary benefits than the non-management employees. Twenty-seven percent of the small private employers (those with five to fifty employees) did not respond to the health care benefits question. This compares to an average non-response rate of nine percent for medium and eight percent for large size firms. In general, it was found that benefits increase as the company gets larger.

## Summary

There is a strong consensus across all of the employer groups that worker training and basic education must be strengthened. Employers cited the need to expand and improve the training available through high schools and community colleges. Their four major priorities for state action are as follows:

- improve high school education,
- expand life skill training in high school,
- improve professional/technical (professional) training in high school, and
- provide school-to-work transition.

Despite the recognized need among employers for higher levels of proficiency and expanded workplace skills, many employers appear unwilling or unable to participate or invest in general skill development. This attitude comes through in the way employers responded to the questions about their current active involvement in school and/or employment and training programs. Even if the employers who want to participate were added to those that currently do, only twenty-one percent of the employers would be involved in these programs. This highlights a critical shortcoming in the present efforts to engage employers as active partners in developing the current and future workforce programs.

Most employers indicated that they did not have a significant shortage of qualified applicants for most job openings. With such a large pool of

available labor supply, one of the most important reasons for rejecting applicants for a job was the perceived lack of "work ethic". The most important reasons for rejecting these applicants were the inability to adjust to the work environment, lack of verbal communication skills, and no work experience. The most startling response to this part of the survey was the fact that the lack of a high school or general education diploma was not, by itself, an important reason for rejecting somebody for a job.

Firm size drives what types of benefits and training opportunities are available from the employers. It also has a tremendous impact on their ability to participate in education and workforce development initiatives. As the size of the employer decreases, there is a decline in the amount of pay and employee benefit packages, definable workplace skill standards and practices, and the time and resources available to actively participate in formal workforce training programs.

CHAPTER 3

# TRAINING - WHY AND HOW

## Who Provides Training

One of the most important characteristics of a high performance organization is continuous learning. Continuous learning means that all worker skills are continually upgraded and necessary training is continuously available. The manner in which companies provide training and the types of training provided are key to a whole range of issues, from upgrading technical skills to adapting new technology and increasing productivity. It is, therefore, important to understand employer's attitudes about training.

The top reasons why training is provided in the private sector are to *(Question 2)*:

- improve productivity (86%),
- help employees develop more positive attitudes and work habits (78%),
- improve technical skills (75%), and
- improve basic skills[1] (67%).

For the public sector, the three most important reasons are to:

- improve productivity (86%),
- help employees develop better attitudes and work habits (80%), and
- promote the personal and career development of employees (77%).

Question 1 responses indicate a number of general issues about training. Two-thirds or more of all firms:

- want to do a better job of training,
- indicate training is a priority investment, and
- feel that they have qualified people to provide training.

It was asked in Question 1 whether employers felt that highly trained employees would be "stolen" by other companies. Roughly two-thirds of both private and public-sector respondents felt that this was not a problem.

Less than half of the private and public sector respondents agreed with the statement that "We try to hire only employees who can contribute immediately." Over half felt there are places that teach the kinds of skills they need. On the question of hiring people who can contribute immediately, one third of the respondents - private and public - disagree. Thirty percent of the private sector respondents disagree that there are places which teach the needed skills.

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[1] Includes reading, writing and basic math.

## On-the-Job Training

According to the survey, many firms provide on-the-job training (OJT)[2] to new employees.

- Over three-fourths of the firms actually provide OJT.
- Around 60% of the respondents actually identify employees to train the new employee.
- Thirty-five percent of the private and 40% of the public firms provide training to the employees who will then provide the OJT to others.
- Size of the company impacts whether OJT will be offered:
  - seventy-six percent of small companies provide OJT.
  - ninety percent of medium-sized companies provide OJT.
  - eighty percent of large employers provide OJT.
- Size also impacts whether the trainer is trained.
  - thirty-four percent of small firms train the trainer in how to train.
  - forty-seven percent of the medium size firms train the trainer.
  - forty-two percent of the large firms train the trainer.

## Formal Training[3]

The other way employees are trained is through formal training programs *(Question 4)*.

- Two-thirds of the private sector respondents provide formal training. However, the size of the firm has a major bearing on this issue, with formal training provided by:
  - only 64% of small employers,
  - eighty-four percent of medium-size firms, and
  - ninety percent of large firms.
- Almost all (92%) of the public respondents provide formal training. The top two providers of training sources for both sectors are:
  - in-house training departments, and
  - outside vendors/consultants.

The private sector's third choice is industry/trade associations, while the public sector's is professional associations. When the private sector uses a public sector training provider, community colleges are the first choice.

These results are consistent with those of other studies. A Department of Labor study, "Economic Change and the American Workforce" (U.S. Department of Labor 1992), examined training sources used by firms in four states: Indiana, Colorado, Mississippi, and Missouri. The top three training sources for these states were:

- in-house training,
- trade or professional groups, and
- consultants/vendors.

The least-used sources were:

- labor unions, and
- state customized training.

Also low on the list are Chambers of Commerce and Private Industry Councils.

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[2] On-the-Job Training (OJT): A method of training where one employee trains another employee about a job. This does not include company orientation.

[3] Training in the survey was defined as classes, workshops, seminars, courses or other organized formats of instruction provided by a qualified instructor. In the survey OJT and Training were present in separate questions with the accompanying definitions. To avoid confusion, the designation "formal training" is being adopted and means the same as training above.

Both the Department of Labor and the Oregon studies show that, while employers express concern about training costs, private training providers (which are generally more expensive) are used to a much greater extent than public providers.

The reasons why companies do not use public training providers vary *(Question 10)*. Among private sector firms, the most common reasons are that:

- the organization conducts its own formal training, and
- the organization's training needs are unique.

The uniqueness of training needs was the most common reason cited by public sector respondents.

A sizeable minority of small and medium-size firms (40%) feel that training programs provided by schools, community colleges or other public training providers are too expensive. Only 27% of the large private firms cite cost as a reason for not using public training programs.

Twenty-seven percent of the large firms cite cost as a reason for not using public training programs. Forty-five percent of the public and 38% of the small, 33% of the medium and 20% of the large private sector firms cite "Qualified Instructors Do Not Exist for Our Needs" as a reason for not using this type of training program.

Both public and private sector firms are likely to offer time release with pay as one way of encouraging training. Tuition reimbursement is also used in both sectors, although the public sector is much more likely to pay training costs. The private sector is much more likely to provide training after hours or on weekends, whereas the public sector tends to hire temporary workers to fill in for employees attending training.

One of Oregon's Benchmarks[1] is the percent of employer payroll dedicated to training and education. While the survey *(Question 12)* does not yield sufficient results to thoroughly address this issue, a basic trend is discernable, as shown by Figure 15.

- Fifty percent of the private and 77% of the public employers track training expenditures.
- Twenty-eight percent of private and 67% of the public employers have a formal training budget clearly separated from other costs.
- Training budgets primarily consist of tuition, seminar/class fees, travel/mileage reimbursement and per diem expenses.
- One-fourth of the public and one-fifth of the private sector employers use some measure, such as percentage of payroll, to develop their training budget.

## Joint Training

Survey results indicate that while 59% of public sector employers work closely with other agencies on joint training efforts, only 23% of private sector firms do so *(Question 13)*. The most frequent reasons given by

[1] A series of measures the State of Oregon uses to identify and track performance in specified areas such as worker training.

private firms for not entering joint training programs are:

- other businesses are viewed as competitors (30%),
- the training needs of other companies are different (24%), and
- private firms are not aware of this type of effort (20%).

The top four educational organizations private employers are involved with are:

- school advisory groups (13%),
- apprenticeship programs (8%),
- private industrial councils (8%), and
- community college advisory boards (8%).

The top three educational organizations public employers are involved with are:

- community training programs (17%),
- school advisory groups (16%), and
- community college advisory boards (13%).

## Summary

These questions cover the large number of options available to employers when providing skills training to their existing workforce. The answers document the lack of partnerships and coordination between the public, private, and in-house training capacities that exist in the state. This minimal resource sharing may result from a combination of factors: the lack of a basic understanding of the public training capacity or employer needs, program costs, and/or very specialized occupational skills being needed by the worker.

The need to increase the productivity of all workers is the most important reason for providing training to all workers. This need is addressed by employers through a high priority placed on courses to improve employee attitudes, work habits, and technical and basic skills.

Most employee training is offered two ways by employers in Oregon. The first way, and the most common, is on-the-job-training, which is available from over seventy-five percent of the employers. Formal training, the second most commonly used, is offered by approximately two-thirds of the employers. Firm size again plays a key role in the level of training offered, either through on-the-job or formal training.

Public/private partnerships will be critical if the state is to achieve its goal of having a skilled workforce equal to any in the world by the year 2010. At present, the majority of the training to the existing workforce shows a very incomplete network between the public and private training entities. The vast majority of training for these workers is done in-house or by outside vendors and consultants. The last group of training providers used by employers are the public vocational employment and training programs and labor unions. Only a small percentage (23%) of the private sector employers report using joint training as a way to improve employee skills. All of these organizations will need to work together much more extensively if they are to maximize the investment that will have to be made in worker skill training.

CHAPTER 4

# WHO GETS TRAINED AND IN WHAT?

One of Oregon's Benchmarks is the percentage of the workforce that has received at least 20 hours of education related to work skills and knowledge within the past 12 months. This measure recognizes the important role company training programs play in maintaining and upgrading worker skills. Continuous learning is a key element in developing high performance organizations, the survey results provide clear evidence that Oregon employers do not have training practices which provide meaningful continuous learning for the bulk of their workforce.

The training practices of Oregon employers generally reflect national trends. The results of a survey of private sector companies with 100 or more employees is published annually in Training[1]. The survey asks specific questions about who gets trained, in what areas, and the hours of training received. The 1991 survey, which was conducted just prior to the Oregon Employers Workforce Development Survey, found that managers, professional/technical[2] and sales people receive the most training. Since 1985 this trend has been consistent. In 1991, the production occupation group experienced an increase in training received. "More organizations trained more of these workers for more hours this

**Table 3**

**TRAINING BY OCCUPATIONAL GROUP**

| Group | Number Trained | Percentage of Total Employment | Total Employment |
|---|---|---|---|
| Managers | 21095 | 31.6% | 66677 |
| Prof/Tech | 62281 | 30.0% | 207578 |
| Sales | 33905 | 24.9% | 136048 |
| Clericial | 23120 | 11.3% | 204240 |
| Service | 23939 | 13.6% | 176344 |
| Production | 21227 | 6.7% | 85100 |
| Const/Maint | 5737 | 7.4% | 116323 |
| Op/Labor | 8634 | 17.3% | 1158954 |
| TOTAL | 199,983 | 17.3% | 2,151,264 |

**Firms training over 50% of employees 20 or more hours.**

[1] Training is a publication which deals with training and human development resource issues. It annually conducts a survey of employer training practices and publishes the results in the October issue.

[2] Refers to an occupational group, not the Oregon Department of Education training curriculum or the occupations associated with that curriculum. The occupation group includes such positions as: electrical engineers, licensed practical nurses, computer programmers, dental hygienist, teachers, scientists, accountants and purchasing agents.

year than last. Training and development efforts targeted at quality improvement may explain this shift." (Training, October 1991, pg 48)

## Training Hours

Table 3 shows the results of the Oregon Employment Division analysis of the percentage of Oregon employees who work in firms which provide at least half of their employees twenty or more hours of training a year. Overall, only 17%[3] of the workforce is employed by companies which provide 20 or more hours of training a year to at least half their employees.

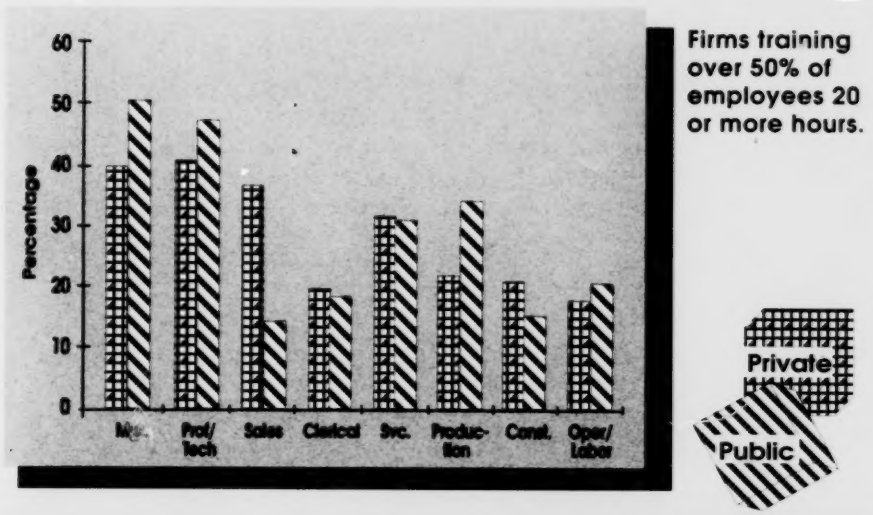
Consistent with the Training survey results, managers and professional/ technical positions receive the most training. These groups make up 19% of the private sector employment and 50% of the public sector employment.

On the whole, the public sector provides greater opportunity for training than the private sector. **Figures 6 to 14** show not only the private and public percentages, but also the percentages for small, medium and large

**Figure 6**

### Training by Occupational Group

***Public and Private Sector Comparison***




[3] The percent of responding firms which indicated that they were providing at least 50% of their employees in each occupation at least 20 hours of training a year was input into the Employment Division's occupation matrix. The result was a weighted average for each occupation. These averages were in turn converted into a single number. The end result of the calculation process was the benchmark figure of 17%.







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Figure 7

## Training by Sector and Firm Size

### *Manager/Administrator*

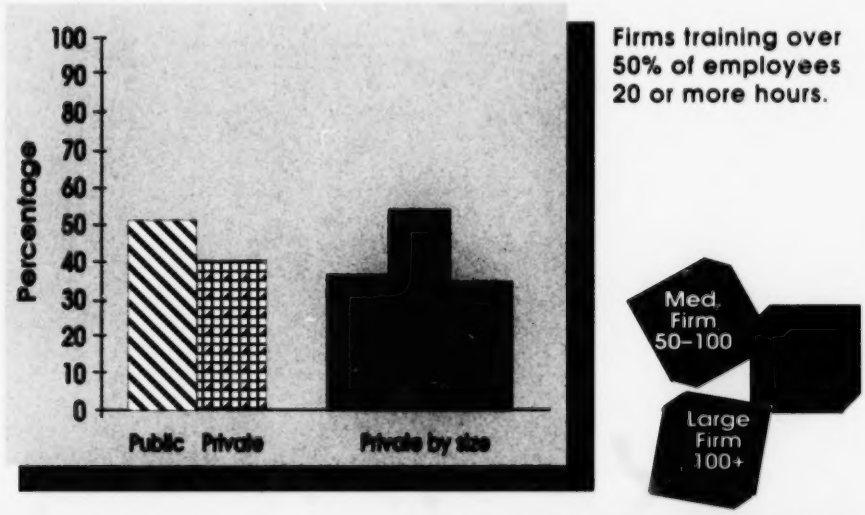


Figure 8

## Training by Sector and Firm Size

### *Professional/Technical*

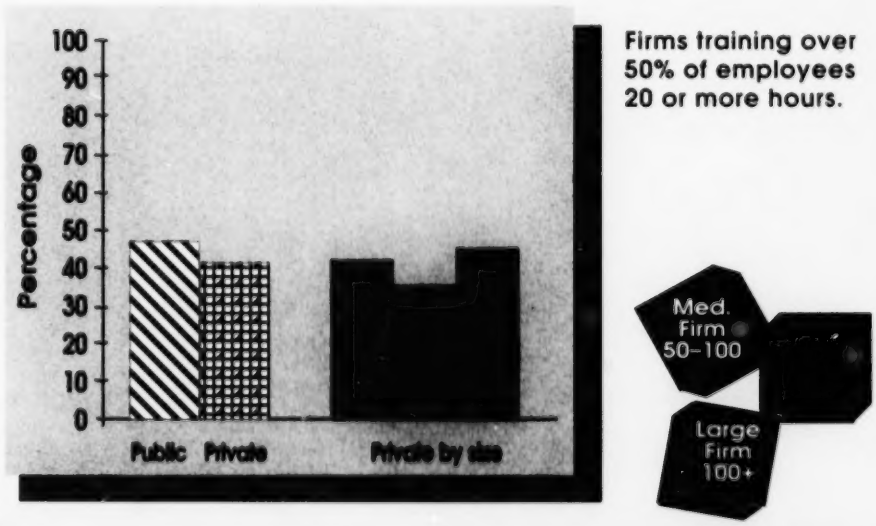




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Figure 9

## Training by Sector and Firm Size

### *Sales*

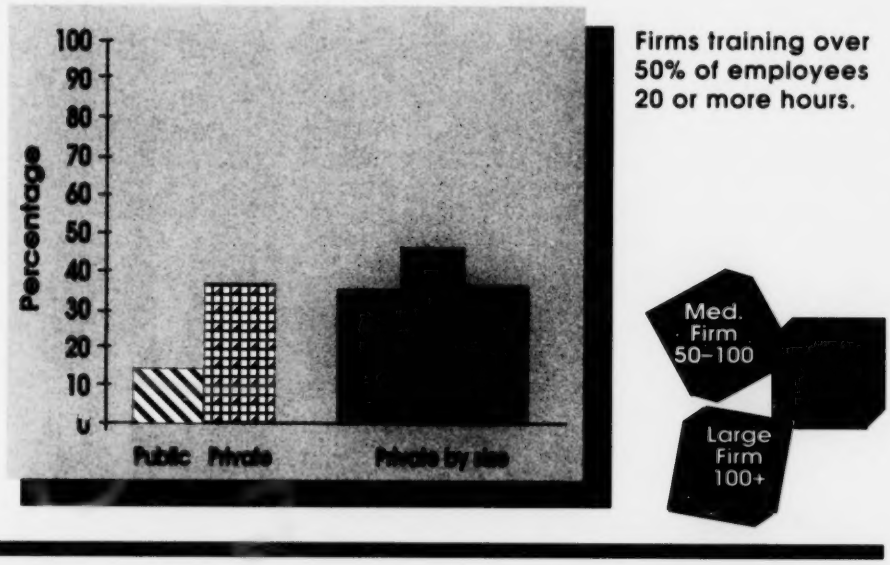


Figure 10

## Training by Sector and Firm Size

### *Service*

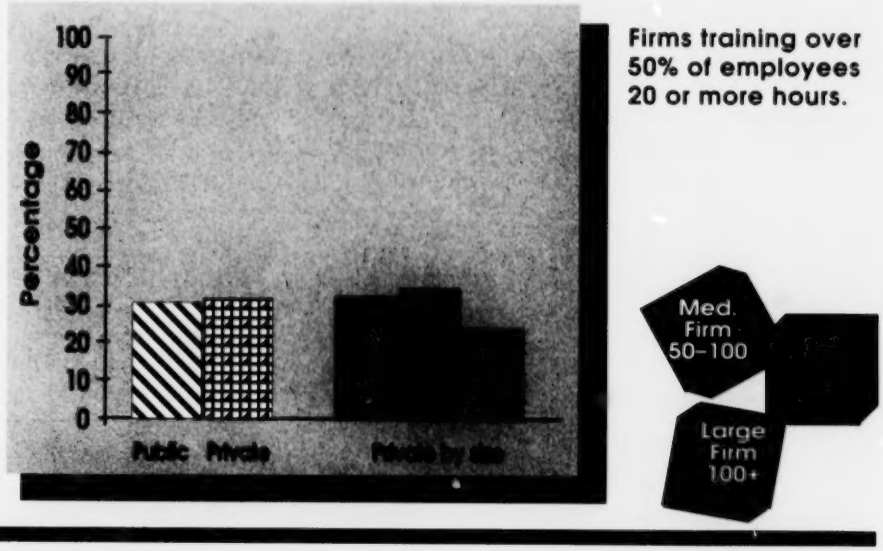








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Figure 11

## Training by Sector and Firm Size

### *Clerical*

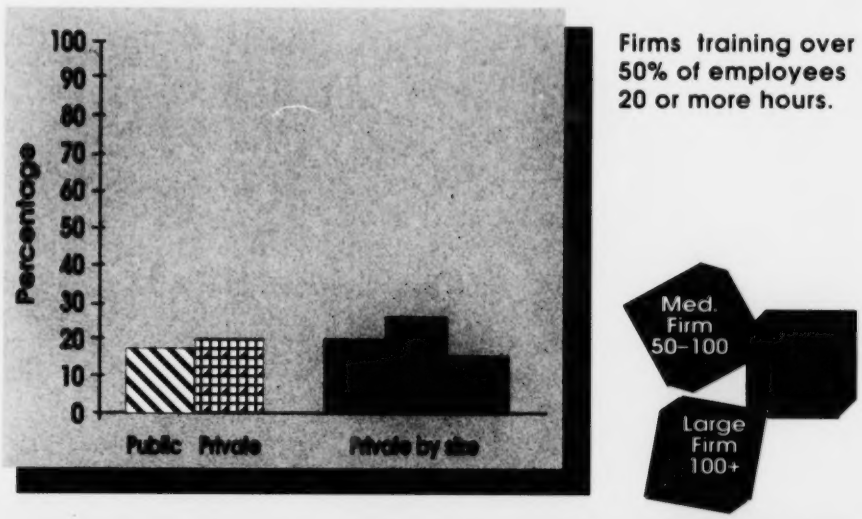


Figure 12

## Training by Sector and Firm Size

### *Production*

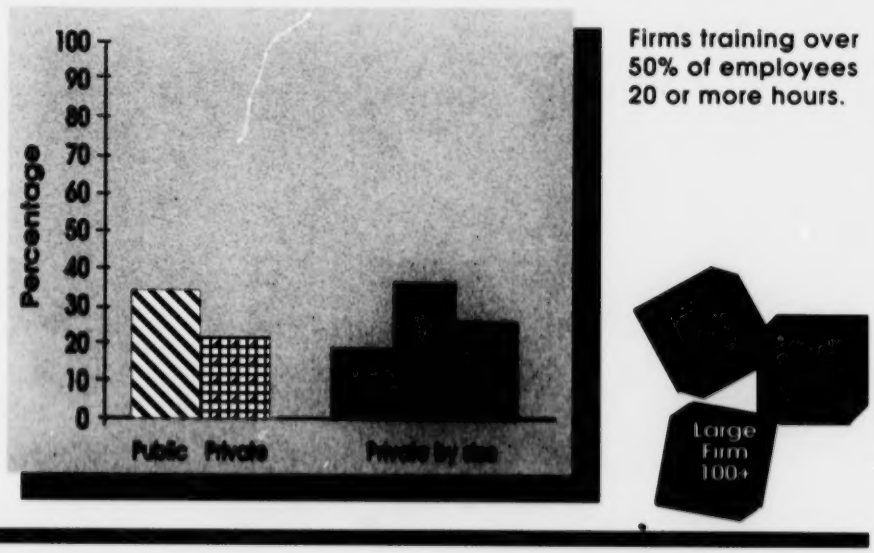




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Figure 13

## Training by Sector and Firm Size

### *Construction/Maintenance*

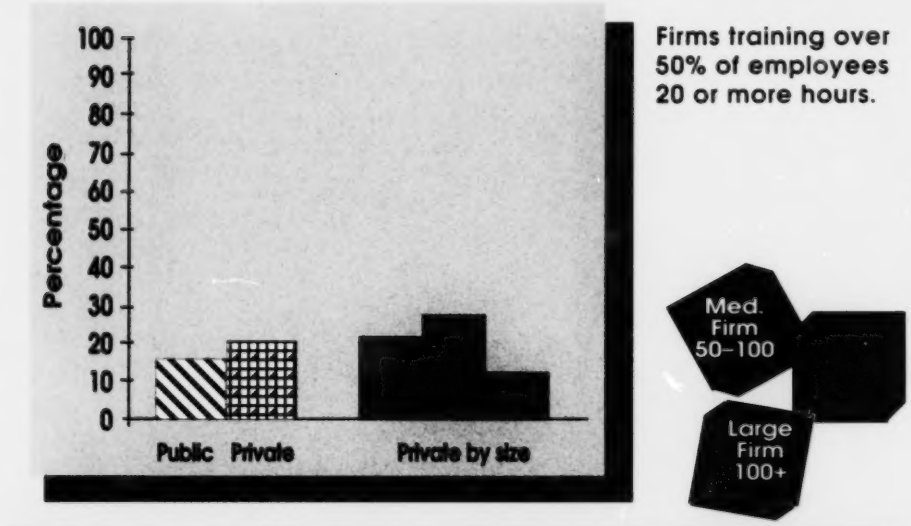
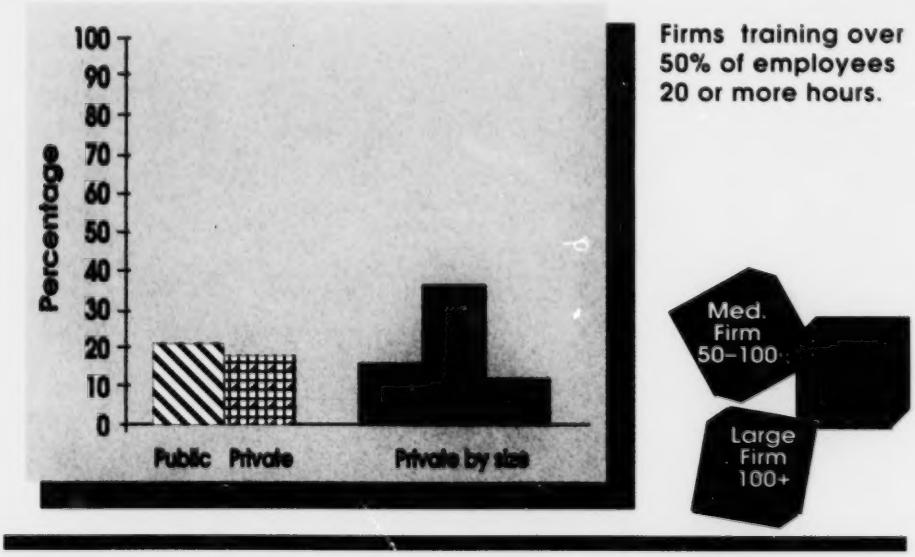



Figure 14

## Training by Sector and Firm Size

### *Operators/Laborers*







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private sector firms by occupation. The general tendency is for medium size private firms to provide more training than small and large private firms.

## Types of Training Provided

Training is generally geared toward the occupation. (The definition for each training priority can be found in the Glossary.) For instance, managers receive training in interpersonal relations, safety, and thinking and organization skills, while professional/technical employees receive technical, safety, and quality training. Safety training is a major item for most occupations. In fact, it is the dominant training received by the service, production, construction, and operator/laborer occupations. The dominance of safety training is demonstrated by the following raw number totals that went into identifying the training priorities for each occupation.

For example:

- Four hundred and seventeen private sector firms provide interpersonal relations training for managers; 387 provide safety training; and 380 provide training in thinking and organizational skills.
- Three hundred and nine private employers provide technical training to technical/professionals; 221 provide safety and 208 provide quality improvement training.
- Two hundred and eight private sector firms provide safety training for production workers; 130 provide quality training and 119 provide technical training.
- One hundred and fifty-eight private sector firms provide safety training to construction/maintenance workers; 101 provide technical training and 65 provide quality training.
- Two hundred and twenty-three firms provide safety training for operators/laborers, while 99 provide technical training and 99 provide quality training.

For public employees the relative distribution of firms providing specific training is better.

- One hundred and sixty-seven public firms provide training in interpersonal skills to managers/administrators; 139 provide training in thinking and organization; and 132 provide technical skills training.
- One hundred and forty-eight public employers provide professional/technical occupations with technical training; 113 provide training on interpersonal skills and 106 provide safety training.
- Nineteen public sector employers provide technical training to production workers; 17 provide safety training and 9 provide training in interpersonal skills.
- Eighty-six public employers provide construction/maintenance workers with safety training; 66 provide technical skills training; and 28 provide training in both interpersonal skills and quality improvement.

- Eighty-six public sector employers provide operators/laborers with safety training; 55 with technical skills training and 30 with interpersonal skills.

## Summary

Traditional patterns still persist in the workplace about what types of employees receive the majority of the training sponsored or paid for by their employers. These patterns place most of the training opportunities and resources at the level of professional, technical, sales, and managerial occupations. Not only do these occupational groups account for approximately 80-85% of the resources being expended but the types of training being offered are much broader than those for clerical, production, construction and maintenance workers. The results of this and other national studies confirm the continued existence of this pattern.

The types of workplace skills that will be demanded for all skilled workers in the year 2010 are currently being offered in sufficient quantities only to the professional, technical, sales, and management employees in public and private sector organizations. These types of skill development opportunities include interpersonal relations, safety, thinking and organizational skills, and technical and quality training. For the clerical, production, construction, and maintenance workers, the number one training opportunity provided by the employers is workplace safety. Although, some of the higher level skills are offered to these workers, there is a dramatic decline from the number of employers who offer the workplace safety training to those that also offer technical, quality control, and interpersonal skills development to these employees.

If Oregon employers are going to move to a high performance environment, training practices will have to change. High performance organizations empower their employees to make decisions, provide them with specific tools, and teach them to work in teams. To be successful, this will require a change from the traditional organizational structure that only offers these opportunities to the higher level occupations at the top to a structure that recognizes the value of continuous training to all employees. Given the level and type of training reflected in this survey, this will be a substantial and costly undertaking.

CHAPTER 5

# TECHNOLOGY, WORK PRACTICES, SKILL DEFICIENCIES, & HIGH PERFORMANCE

As discussed in Chapter 1, the use of technology, organization work practices, high performance and skill deficiencies are related. Questions 17, 18, 19, and 20 deal with these issues.

## Technology

As in other areas of our inquiry, there is extensive empirical literature covering the influences of new technology on jobs, worker skills, and earnings. First, the factors that interact to influence how technological change affects the level of employment in an industry or sector include:

- the speed with which a product or process innovation is adopted;
- the size and rate of growth of the domestic and international markets for the new product;
- the increase in labor productivity;
- the increase in the size of the demand for the product as a result of price reductions;
- the expansion or contraction in other industries in response to changes in the costs of key inputs into the product; and
- the effects of technological change on either raising or lowering wages in the industry.

These variables exert offsetting influences on the demand for workers within an industry. Technology changes the production of goods and services and improves the efficiency of the production processes in these industries. Technological advances have played an increasingly important role in the growth of the income of individuals during the past decades. This role is expected to increase in the next twenty years.

One crucial reality in the state and national economies is that they are more "open" to international trade than at any other time in the last fifty years. The increased importance of international trade means that higher productivity growth, which is supported by technological change, is essential to either maintain or improve the earnings of workers and assure the preservation of jobs in the state or the nation. Moreover, the more rapid rates of technological change mean that the knowledge forming the basis for innovation will not be unique to a certain region. **This rapid rate of technological change will not limit the employment opportunities for those workers who have strong educational and workplace skills but will limit or eliminate the opportunities for less skilled workers.**

The investments that private and public organizations in Oregon have made in new technology were gathered from the employer survey

*(Question 7).* For instance, results indicate that three-quarters of the public sector and medium and large private firms have made significant investments in technology over the past three years. For the small private sector employers, approximately sixty percent have invested in technology over the same period. As has been true in many areas of this study, the public sector and large private firms behave similarly.

An important question that is continually asked concerns the impact of new technology on different occupational groups. In Oregon, the largest impacts have been on the professional/technical positions in both the private and public sectors. The next largest group to feel these impacts are the manager/administrative and clerical/administrative groups. Surprisingly, the positions where the introduction of new technology had the least impact were in the construction/maintenance and the operator/laborer groups. This could be a function of the limited three-year time period that was used to answer this question. Much of the impact of technology on construction/maintenance and operator/laborer occupations was felt in the early and late 1980s, whereas since the late 1980s the emphasis has been on increasing the productivity of management, professional, technical and clerical jobs, especially in the service producing sector.

In the public sector, the investment in technology has had a major impact on hiring practices. One of the public sector's top four reasons for rejecting job applicants is that they have inadequate computer/technical skills. **This is a critical finding because it points to a need to provide educational opportunities to students and workers to learn these types of skills.**

Question 18 and 19 address business practices associated with high performance work organizations and employee involvement practices. The survey responses show that the public and private sectors differ slightly in their practices.

## Private/Public Sector High Performance Workplace Practices

The private sector's five most cited high performance workplace practices include (Figure 15):

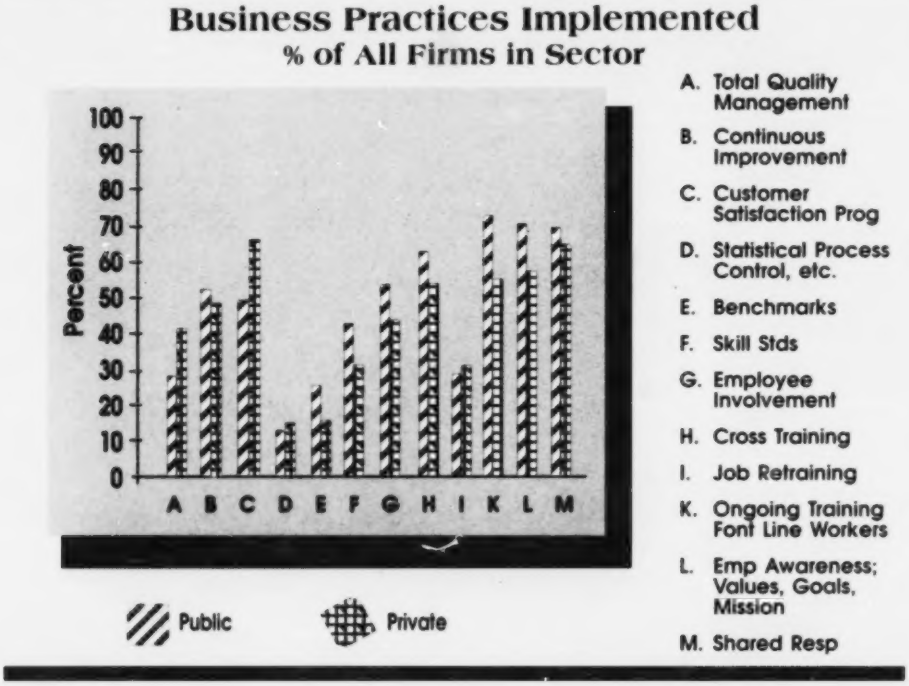
- customer satisfaction programs,
- shared responsibility for quality between managers and workers,
- employee awareness of values/goals/mission,
- on-going training of front-line workers, and
- cross-training.

Some differences were evident depending on the size of firm. Large private firms placed greater emphasis on employee involvement programs than small and medium sized employers. However, customer satisfaction programs are the second highest practice for small and medium sized private firms, but sixth on the list of large ones.

The five workplace practices cited most often by the public sector:

- employee awareness of values/goals/mission,
- shared responsibility for quality between managers and workers,
- on-going training of front-line workers,
- cross-training, and
- continuous improvement programs.

Figure 15




There were only two differences noted in this survey in the top five workplace practices reported by the private and public sectors. For the private respondents the one factor was the emphasis on customer satisfaction programs, and for the public sector it was continuous improvement programs.

The two workplace practices used the least, regardless of sector, were statistical process control (SPC) and benchmarking.

## High Performance Private/Public Sector Employee Involvement Practices

Forty-three percent of the private sector and fifty-two percent of the public sector respondents have implemented some kind of employee involvement program. The five most successful employee involvement practices in the private sector are:

- performance-based pay,
- non-monetary awards,



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- profit sharing,
- self-directed work teams, and
- Total Quality Management.

The most successful practices in the public sector were:

- labor-management cooperation,
- self-directed work teams,
- non-monetary awards, and
- Total Quality Management.

Again, there is a great deal of similarity between the private and public sectors in the types of employee involvement programs that were most successful. The major difference for the private sector was the performance-based pay factor, and for the public sector it was labor-management cooperation.

The three practices receiving the lowest success rating in the private sector were:

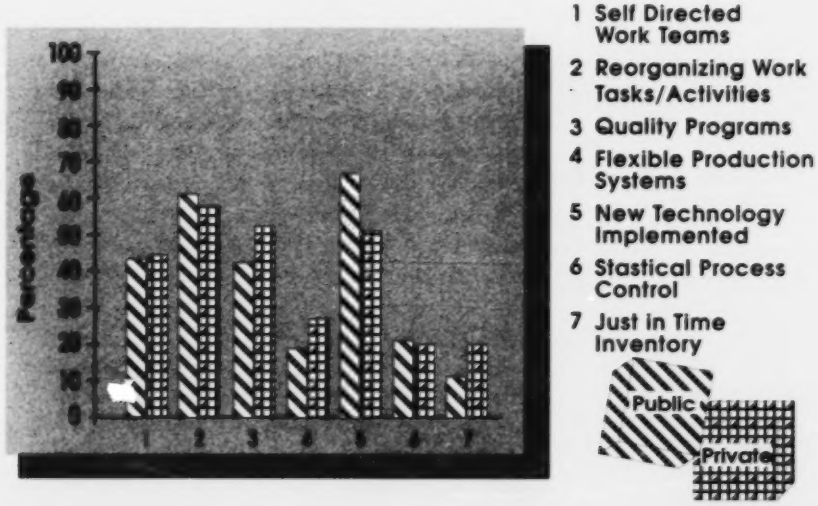
- an all-salaried pay system,
- gain-sharing, and
- quality circles.

In the public sector, the three least successful options are:

- profit sharing,
- gain sharing, and
- performance-based pay.

**Figure 16**

## Firms Implementing High Performance Practices



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## High Performance Private/Public Skill Deficiencies

Question 20 asked employers if they had experienced any skill deficiencies when they implemented a number of organizational changes. It should be noted that in order to become a high performance organization not all of these changes must be instituted and not all must be implemented at the same time.

Less than half of the responding firms, private and public, have implemented self-directed work teams, flexible production systems, statistical process control, and just -in-time inventory (Figure 16; also see glossary for definition of terms). In addition, less than half of the public sector respondents have implemented quality programs. However, sixty-one percent of the public firms have reorganized work tasks and sixty-six percent have implemented new technology. For the private sector, a little more than half have reorganized work tasks (58%), quality programs (52%), and implemented new technology (51%).

Of those firms that have implemented high performance-related changes, half or nearly half (see Figure 15 & 16) have experienced skill deficiencies in the areas of reorganizing work tasks and implementing new technology.

In general, large private firms have experienced skill deficiencies in more areas than small or medium sized firms. Of the large firms (see Figures 17 & 18):

- a little more than half experienced skill deficiencies when implementing self-directed work teams and when reorganizing work tasks and activities,
- sixty-one percent experienced deficiencies when implementing quality programs, and
- three-quarters experienced deficiencies when implementing new technology and introducing statistical process.

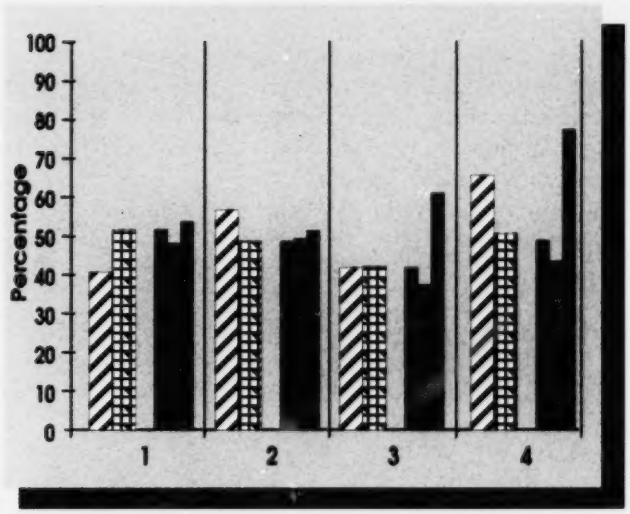
Almost half of the medium and small sized firms reported skill deficiencies when implementing production systems and new technology. A majority experienced skill deficiencies when implementing statistical process control (57%) and just-in-time inventory (55%).

## Organizations Meeting All High Performance Characteristics

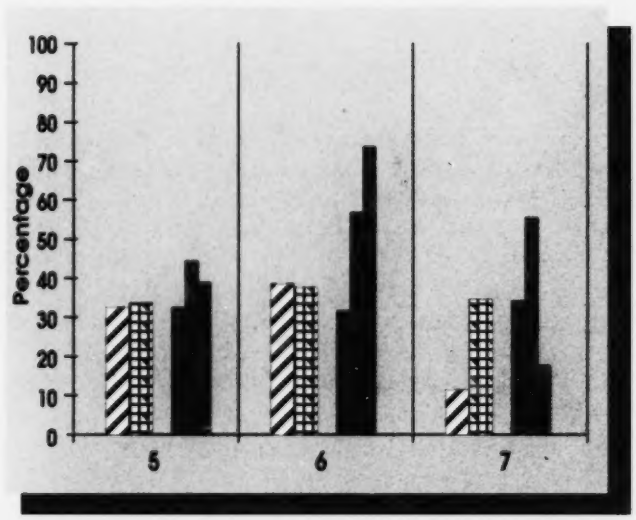
For purposes of this analysis, high performance firms are those in the private sector which indicate they have instituted:

- Total Quality Management,
- continuous improvement programs,
- shared responsibility for quality by managers and workers,
- employee awareness of organization mission, goals, and vision,
- on-going training of front-line workers,

# Firms That Have Implemented High Performance Practices and Experienced Skill Deficiencies




1 Self Directed Work Teams
2 Reorg. Work Tasks/Activities
3 Quality Programs
4 New Tech. Implemented
5 Flexible Prod. Sys.
6 Statistical Process Control
7 Just in Time Inventory




Private
Small Firm—5–50
Med. Firm—50–100
Large Firm—100+
Public



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- Total Quality Management as an employee involvement practice, and
- statistical process control (SPC), just-in-time inventory (JIT), or other similar techniques.

The following conclusions have been reached about the firms that have met all of the high performance criteria mentioned above:

- approximately three percent of the firms surveyed fall into this high performance category,
- a greater percentage of these organizations have implemented more of the changes associated with high performance,
- half of the high performance firms have experienced skill deficiencies when implementing quality programs,
- over half have identified skill deficiencies when implementing flexible production systems,
- sixty-eight percent of the high performance organizations experienced deficiencies when implementing statistical process control, and
- three-fourths of the high performance firms experienced skill deficiencies when instituting self-directed work teams and new technology.

The same top three reasons for rejecting a job applicant for a job are the same for these high performance firms as well as for all other private sector firms. However, the high performance firms have identified inadequate calculation skills as a more important issue than inadequate life skills for a job applicant. This contrasts with the other ninety-seven percent of the private sector sample group which deemed inadequate life skills as a more important reason for rejecting a person for a job. This may reflect the higher rate of skill deficiencies encountered when implementing self-directed work teams, new technology, and statistical process control. **Such a difference may signify a crucial need to improve the training and education of the existing and future workforce to apply these skills in their existing and future jobs.**

## Summary

There has been a significant investment in new technology by the large and medium sized private sector firms. This same investment pattern is also evident in the public sector organizations. All of the occupational groups have been impacted by this investment in new technology with the greatest changes being felt by the professional/technical, management/administrator, and clerical/administrative groups. The least impacts have been noticed in the construction/maintenance and the operator/laborer positions.

The only differences noted between the top five high performance business practices used by the private and public sectors is the customer satisfaction emphasis of the private sector and the continuous improvement program of the public organizations. The other four factors were identical for both sectors.

Based on the results of this survey, approximately three percent of the private sector firms were classified as meeting all of the characteristics of a high performance organization. These firms have noted significant skill deficiencies in certain segments of their workforces when they implemented new technology, self-directed work teams, flexible production systems, statistical process control, and just-in-time inventory. **The presence of these deficiencies within the existing workforce suggests that unless other private and public organizations start to take on the characteristics of these high performance firms, Oregon will have a very difficult time achieving a skilled workforce equal to any in the world by 2010.**

APPENDIX

# METHODOLOGY

## Overview

### Development of the Mail Survey Instrument:

The Oregon Employers Workforce Development mail questionnaire (see Appendix B) was designed by a team of personnel from both the public and private sectors, including the Employment Department and Economic Development Department. Several steps were undertaken from conceptualization to mailout. In preparation for designing the survey, an environmental scan of state and national programs looking at worker training and work organization practices was conducted, a literature search was completed, and other state surveys were examined.

An Employer Survey Design Team encompassing members from government, business, education and labor was formed. Using information gained in the above-mentioned process, the Employer Survey Design Team collaborated to develop a survey design. The first iteration of the survey consisted of 130 questions. These questions were submitted to Joan Wills of the Institute for Educational Leadership, David Stevens of the University of Baltimore, Bob Watrus of the Northwest Policy Center at the University of Washington, and Jim McIntire of the Institute for Public Policy and Management at the University of Washington, each generally recognized as an expert in the field.

After considerable collaboration with the Design Team and the experts, the questionnaire was revised and culled to 27 questions covering topics related to training, employment practices, skill deficiencies, and high performance work organizations. The job of the experts was to review the questionnaire for the clarity of its content and construction.

The 27-question mail questionnaire was administered by the Employment Department Research and Analysis Section. A pre-test was conducted with 100 employers prior to the general mailout, and revisions to the questions were made to improve their clarity and content. Participating employers were selected by a random sample selection process, stratified by industry, size of business, and geographic region within the state of Oregon. This sample was taken from the Employment Department employer payroll and employment file for the third quarter of 1991. This database, housed at the Employment Department, is a complete and thorough listing of businesses by number of employees and industry classification.

Two weeks after the initial mailout, reminder postcards were sent to non-respondents. Phone calls were made as needed to complete the survey over the telephone. The total response rate to the mail questionnaire was forty-three percent (43%). Although the response rate was excellent for a survey of this type, screening procedures were used to insure that the respondents' characteristics mirrored those of the employer sample.

## High Performance

One of the goals of the survey was to identify the percent of firms in the Oregon economy which could be classified as high performance. A secondary objective was to determine whether the needs and attitudes of high performance firms differed from those of other firms. Two independent research approaches were used to accomplish this. One was a series of focus groups conducted by a private consulting firm. The second was the inclusion of high performance questions in the Oregon Employers Workforce Development Survey.

Both approaches have their strengths and weaknesses. The focus groups allowed personal contact with respondents, giving moderators the chance to clarify word meaning and actual organization practices. They also allowed the determination of relative priorities among activities. However, focus groups are expensive, and therefore limit the number of firms that can be included in the study. A further limitation is the number of questions that can be dealt with in a one-hour focus group, and the general inability to classify and quantify such information.

The mail survey covered a larger number of firms and covered more topics. While the focus groups used a qualitative (exploratory) research method, the mail survey involved a quantitative (measurable) method which allows greater use of statistical analysis to determine interrelationship among questions.

A complicating factor in both activities is the subjectivity of what high performance really means. "High performance" is the economic designation for organizations which are implementing Total Quality Management (TQM) concepts. TQM is the management/administrative designation for the philosophy and management practices used to improve organizational quality. There is some imprecision in translating from the management approach to the economic designation.

On the research side, this lack of precision is apparent. Two recent employers surveys, one from Arkansas and the other from Wisconsin, demonstrate this clearly. The purpose of each, like the Workforce Development survey, was to assess the training needs and business practices of employers in each state. Through a series of questions, the Arkansas Department of Industrial Development sought to ascertain the degree to which quality management is being used. One of the questions is similar in scope and content to Question 18 of the Oregon Workforce Development survey.

*How are your production workers involved in making quality decisions during the production process?*

- Worker Quality Control
- Quality Circles, Employee Teams
- Self-Directed Work Teams
- Natural Teams
- Cellular Manufacturing
- Statistical Process Control
- Gain share (other wage plans)

Wisconsin sought to identify "best practices" (high performance) by asking a series of questions. The one closest in content and structure to Question 18 is:

*Which of the following changes if any has your firm made in the past seven years?*

- New production line
- New production process
- New market entrance
- Introduction of work teams
- New quality systems
- Labor-management committees
- Statistical Process Control (SPC)
- Just-In-Time Inventory

The Arkansas study was a personal interview of 94 manufacturing plant managers. The Wisconsin survey was a mail survey sent to all employers. Each attempts to ascertain similar information, but each identifies different characteristics for "quality management-oriented" or the "best" firms.

In the Oregon Workforce Development survey, the employer responses on two questions were used to determine if they were high performance or not. Question 18 listed practices associated with high performance work organizations. Question 19 dealt with a related issue of employee involvement. Included was a question about whether TQM was used as an employee involvement program. The combination of Questions 18 and 19 allowed the identification of firms which indicated they are using high performance work practices and also claim to be high performance work organizations. **High performance organizations were therefore defined as having the following characteristics: continuous improvement programs, statistical process control, just-in-time inventory, employee involvement programs, shared responsibility by managers and workers for quality, employee awareness of organization values, goals, mission, on-going training for frontline workers, and Total Quality Management as an employee involvement practice.**

Much discussion centered on which TQM practices to include in the definition of a high performance organization.

- Skill standards are a recruitment/hiring approach and they are not

widely used in TQM. Consequently, they were dropped from the definition of high performance.

- Benchmarking is beginning to appear as a TQM practice, but it is still narrowly used. In addition, while benchmarks may be quantitative in nature, the recognized quantitative technique is statistical process control (SPC). Therefore, benchmarks were excluded.
- Job retraining and cross-training are important elements, but narrowly focused. On-going training for front-line workers is broadly focused and encompasses the above two practices and more. Since training of front-line workers is critical to TQM, it is included in the high performance designation, while retraining and cross-training are not.
- Employee awareness of organizational values, goals, and mission is almost universally used in all TQM efforts. It was included.
- Empowerment, which means a "shared responsibility by workers and managers for quality", was also included.
- Statistical process control (SPC), just-in-time inventory, or similar techniques, while limited in their use, are more generally recognized as high performance characteristics than benchmarks. In addition, a major element of TQM is measurement. The most broadly recognized measurement technique associated with TQM is SPC. Therefore, SPC was included.
- Customer satisfaction programs were excluded largely because focus group research found that while the customer was not well-defined, 83% of the firms indicated that customer service was a clear focus of the company. In addition, different interpretations of the phrase made analysis impossible.
- TQM and continuous improvement programs were included, largely because TQM encompasses a widely-accepted set of management practices and philosophies and continuous improvement is a key element of TQM.

The focus group found that 17% could be classified as high performance practice firms. This group was further broken into "leader-oriented" and "systems-oriented" firms. The focus group report notes "that system-oriented companies have established reliable and valid methods to assess cause and effect of management and workforce actions. Such techniques are already key to TQM and SPC approaches to improvement in product quality and delivery." The 3% group from the employer survey and the systems oriented group identified in the focus group appear to overlap. Also, this 3% factor found in the employer mail survey is similar to the 5% found in a national survey conducted by the Commission On the Skills of the American Workforce and published in its report America's Choice: High Skills or Low Wages. However, the percentages from the focus group study and the employer mail survey are probably not comparable because of the different definitions and data collection techniques used to collect the information.

# GLOSSARY OF TERMS

## BASICS SKILLS

Includes reading, writing, basic math - defined in survey.

## BENCHMARKING

The practice of setting operating targets for a particular function by selecting the top performance levels, either within or outside a company's own industry.

## CONTINUOUS IMPROVEMENT

An ongoing series of gradual changes or improvements in the way one does things to meet increasing customer expectations in a cost effective manner.

## CUSTOMER

Any individual or organization, inside or outside the company, that uses the company's/section's/individual's product or service.

## CYCLE TIME

The amount of time it takes to complete a particular task. Shortening the cycle times of critical functions is usually a source of competitive advantage and a key quality-improvement objective.

## EMPOWERMENT

Giving employees relatively broad decision-making authority and responsibility. In order for employees to be empowered, they also need the skills to do the job effectively.

## FLEXIBLE PRODUCTION

A technology that integrates the process of design and the digital output of design directly down to the load of instructions onto the assembly line. The system gives employees immediate access to information right on the worksite. Sometimes it is called Computer Integrated Manufacturing (CIM).

## GAIN SHARING

A type of variable or incentive pay typically used to increase production, by linking pay directly to specific improvements in a company's performance.

## JUST IN TIME (JIT) INVENTORY

A Japanese approach to inventory reduction. The basic idea is to schedule the arrival of raw materials and parts at the factory at the exact time they are needed and schedule the immediate departure of finished products, instead of maintaining costly stockpiles of materials, parts or products.

**LIFE SKILLS**

A set of skills including time and attendance, following instructions, anger management, social skills, character development, and adaptability to workplace - defined in survey.

**ON-THE-JOB TRAINING**

A method of training where one employee trains another employee about a job. This does not include orientation -defined in survey.

**PERFORMANCE BASED PAY**

A form of incentive pay in which increases in compensation are based on the attainment of quarterly or annual targets established before the fact by the managers for individual subordinates or jointly with the subordinate.

**PRODUCT/SALES TRNG**

Marketing, sales, training to understand the business or industry - defined in survey.

**PROFIT SHARING**

Any procedure under which an employer pays or makes available to all regular employees, subject to reasonable eligibility rules, in addition to prevailing rates of pay, special current or deferred sums according to the profits of the business.

**QUALITY IMPROVEMENT TRAINING**

Quality, total quality management, customer service or customer satisfaction training - defined in survey.

**QUALITY CIRCLES**

A participative management technique. Quality circles consist of carefully selected homogeneous groups of employees who meet regularly to consider specific problems and develop recommendations for solutions for presentation to management.

**RETRAINING**

A format training method making it possible for an employee to learn a new job - defined in survey.

**SAMPLE**

That which is taken from a population for purposes of identifying characteristics and performance of the whole population.

**SAMPLE SIZE**

The number of units to be selected for the samples.

**SAFETY TRAINING**

Health or safety training related to job or workplace - defined in survey.

**SKILL STANDARDS**

An agreed-upon and well-defined skill requirement for a joboccupation, or industry. Skill standards are set within an organization or for an industry or occupation - defined in survey.

**SKILLS TRAINING JOB**

Development, communication, listening, leadership, coaching, cultural diversity, sexual harassment - defined in survey.

**TECHNICAL SKILLS TRAINING**

Computer skills, new or upgraded technology, computer-guided process technologies such as Stastical Process Control, just-in-time inventory, trade skills (electronics, machining) and maintenance repair skills - defined in survey.

**THINKING & ORGANIZATION TRAINING**

Critical thinking, problem-solving, information management, time management and decision making training - defined in survey.

**TRAINING**

Includes classes, workshops, seminars, courses or other organized format of instruction provided by a qualified instructor - defined in survey.

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OREGON EMPLOYER SURVEY

# Worker Training & Work Organization

*Sponsored by:*

Workforce Quality Council
Oregon Economic Development Department
Oregon Employment Division
Oregon Progress Board

## DEFINITIONS

**Please refer to this section for any terms used in this survey with which you may not be familiar.**

**Apprenticeship**: A training strategy that prepares youth and adults for skilled employment by conducting training in bona fide and documented employment settings. The content of the training, both on-the-job and related instruction, is defined and dictated by the needs of the industry. Apprenticeship is not cooperative education, 2+2 program, tech. prep. or vocational education.

**Basic skills**: Includes reading, writing, basic math.

**Training:** Includes classes, workshops, seminars, courses, or other organized format of instruction provided by a qualified instructor. Formal training can be provided inside or outside an organization.

**Job retraining:** A format training method making it possible for an employee to learn a new job.

**Life skills:** A set of skills including time and attendance, following instructions, anger management, social skills, character development, and adaptability to workplace.

**Non-managerial employee:** All employees in an organization that are not supervisors or managers.

**On-the-job training:** A method of training where one employee trains another employee about a job. This does not include company orientation.

**Skill standard:** An agreed-upon and well-defined skill requirement for a job, occupation, or industry. Skill standards are set within an organization or for an industry or occupation.

OREGON EMPLOYER SURVEY

# Worker Training & Work Organization

Please complete this survey and return it to us in the enclosed self-addressed stamped envelope. If you have any questions, please call Donald Au at the Oregon Employment Division at (503) 378-8288 or 1-800-237-3710, extension 8-8288 between 8:30 a.m. and 5:00 p.m., Monday through Friday.

Please provide your best estimates to questions requiring a response in numbers. If a question or part of a question does not apply to your organization, leave the space blank or enter n/a (not applicable).

Your response is essential to the validity and reliability of the survey. All responses will be regarded as strictly **confidential** and will not be published in a manner allowing identification of your firm. A copy of the survey results will be mailed to your organization later this year.

Please tell us the title or name of the person completing this survey.

_____

Please tell us the name or title of the person to receive a copy of the survey report.

_____

1. **Please circle the number** to indicate whether you strongly agree, agree, are neutral, disagree, or strongly disagree with the following statements:

| | strongly agree | agree | neutral | disagree | strongly disagree |
|---|---|---|---|---|---|
| a. "If I train employees, other employers just steal them away." | 1 | 2 | 3 | 4 | 5 |
| b. "We want to do a better job of training our employees than we do now." | 1 | 2 | 3 | 4 | 5 |
| c. "We try to hire only employees who can contribute immediately." | 1 | 2 | 3 | 4 | 5 |
| d. "No place teaches the kind of skills we need for our business." | 1 | 2 | 3 | 4 | 5 |
| e. "We have people qualified to train new hires." | 1 | 2 | 3 | 4 | 5 |
| f. "Training is a priority investment in our organization." | 1 | 2 | 3 | 4 | 5 |
| g. Other (please state) _____ | 1 | 2 | 3 | 4 | 5 |

2. Listed below are some reasons for providing employee training. Check each item below that is a reason for your organization to provide training. **Check all that apply**.

a. _____ to improve basic skills
b. _____ to improve technical skills
c. _____ to improve life skills
d. _____ to improve productivity
e. _____ to assure success over competition
f. _____ to promote the personal or career development of employees
g. _____ to help employees develop more positive attitudes and work habits
h. _____ to introduce a new product line which requires new skills
i. _____ to introduce technology which requires new skills
j. _____ to provide for certification or licensing
k. _____ other (please describe)

_____

_____

3. Does your organization provide on-the-job training for new employees (other than company orientation)?

❑ YES - continue ❑ NO - skip to question 4

3a. Have you identified specific employees to provide on-the-job training?

❑ YES- continue ❑ NO - continue

3b. Have the individuals who provide on-the-job training to new employees received training on how to train new employees?

❑ YES- continue ❑ NO - continue

4. Training is defined as classes, workshops, seminars, courses, or other organized formats of instruction provided by a qualified instructor. Training can be provided inside or outside the organization. Does your organization provide training for employees?

❑ YES - continue ❑ NO - skip to question 14

5. **Please review** the following occupational group definitions.

**Managers/Administrators:** Includes top and mid-level managers, but not first-line supervisors. Some examples are purchasing manager, construction manager, food service/lodging manager and administrative service manager.

**Professional/Technical:** Includes staff where substantial post -secondary educational preparation, or equivalent on-the-job training or experiences is required. Some examples are electrical engineering technician, licensed practical nurse, computer programmer, dental hygienist, teacher, scientist, accountant, and purchasing agent.

**Sales:** Includes persons selling goods/services and others directly related to sales. Some examples are retail salesperson, cashier, real estate sales agent, technical and non-technical sales representative, and their sales supervisors.

**Clerical/Administrative:** Includes all staff involved with clerical tasks and their immediate supervisors. Some examples are medical/legal secretary, word processing staff, bookkeeping/ accounting clerk, shipping/receiving clerk, and hotel desk clerk.

**Service:** Includes protective, food, health, cleaning and personal services. Some examples are janitor, cook, bartender, security guard, police officer, fire fighter, nurses aide, and service supervisors.

**Production:** Includes skilled, semi-skilled and unskilled workers performing machine and manual tasks involving production. Some examples are farm worker, nursery worker, welder, cannery worker, faller/bucker, industrial fabricator and electronic assembly worker, and production supervisors.

**Construction/Maintenance:** Includes repairing and maintaining the operating condition of industrial production and processing machinery and structures. Some examples are machinist, electrician, plumber, carpenter, repair personnel, and construction/maintenance supervisors.

**Operators/Laborers:** Includes personnel involved in non-machine tasks generally of a routine nature, may assist in machine feeding or offbearing, but are not involved directly in the making of a product. Some examples are truck/forklift operator, material mover, conveyor tender, carpenter helper, roofer helper, and supervisors of operators/laborers.

What is your best estimate of the number of hours an average employee in each of the following occupational groups participated in training in 1991?

| Hours: | 1-10 | 11-20 | 21-40 | 40+ | n/a |
|---|---|---|---|---|---|
| a. managers/administrators | ____ | ____ | ____ | ____ | ____ |
| b. professional/technical | ____ | ____ | ____ | ____ | ____ |
| c. sales | ____ | ____ | ____ | ____ | ____ |
| d. clerical/admin. | ____ | ____ | ____ | ____ | ____ |
| e. service | ____ | ____ | ____ | ____ | ____ |
| f. production | ____ | ____ | ____ | ____ | ____ |
| g. construction/maintenance | ____ | ____ | ____ | ____ | ____ |
| h. operators/laborers | ____ | ____ | ____ | ____ | ____ |

6. For each occupational group, approximately what percentage of your employees typically receives some training each year (either in-house or outside the firm)? **Please circle the number**. Your best estimate is fine.

| | none | 1-25% | 26-50% | 51-75% | 76-100% | n/a |
|---|---|---|---|---|---|---|
| a. managers/ administrators | 1 | 2 | 3 | 4 | 5 | n/a |
| b. professional/technical | 1 | 2 | 3 | 4 | 5 | n/a |
| c. sales | 1 | 2 | 3 | 4 | 5 | n/a |
| d. clerical/admin. | 1 | 2 | 3 | 4 | 5 | n/a |
| e. service | 1 | 2 | 3 | 4 | 5 | n/a |
| f. production | 1 | 2 | 3 | 4 | 5 | n/a |
| g. construction/maintenance | 1 | 2 | 3 | 4 | 5 | n/a |
| h. operators/laborers | 1 | 2 | 3 | 4 | 5 | n/a |

7. Has your organization made any significant investments in new technology within the past three years?

❑ YES - continue ❑ NO- skip to question 8

7b. What has been the impact of the new technology on the skill requirements for the following occupational groups? **Please circle the number** indicating skill requirements have increased, stayed the same, or decreased for each occupational group.

| | increased | stayed same | decreased |
|---|---|---|---|
| a. managers/administrators | 1 | 2 | 3 |
| b. professional/technical | 1 | 2 | 3 |
| c. sales | 1 | 2 | 3 |
| d. clerical/admin. | 1 | 2 | 3 |
| e. service | 1 | 2 | 3 |
| f. production | 1 | 2 | 3 |
| g. construction/ maintenance | 1 | 2 | 3 |
| h. operators/laborers | 1 | 2 | 3 |

8. **Please review** the following list of types of training.

**Types of Training**

**Basic Skills Training:** reading, writing, basic math.

**Product/Sales Training:** marketing, sales, training to understand the business or industry.

**Interpersonal Skills Training:** team building, negotiation, self-esteem/personal, career development, communication, listening, leadership, coaching, cultural diversity, sexual harassment.

**Thinking and Organizing Skills:** critical thinking, problem-solving, information management, time management, decision making.

**Quality Improvement Training:** quality, total quality management, customer service, customer satisfaction.

**Technical Skills Training:** computer skills, new or upgraded technology, computer-aided process technologies such as SPC, CAD/CAM, MPRS, MPR, just-in-time inventory, trade skills (electronics, machining), maintenance/repair skills.

**Safety Training:** health or safety training related to job or workplace.

What types of training (as described above) were provided to the following occupational groups in 1991? **Indicate the number of hours** of each type of training for each occupational group listed. If occupational group or type of training does not apply, please leave the box blank. Your best estimate is fine.

| | Basic Skills | Product/Sales | Interpersonal skills | Thinking and Organizing | Quality Improvement | Technical skills | Safety |
|---|---|---|---|---|---|---|---|
| a. managers/ administrators | | | | | | | |
| b. professional/technical | | | | | | | |
| c. sales | | | | | | | |
| d. clerical/admin. | | | | | | | |
| e. service | | | | | | | |
| f. production | | | | | | | |
| g. construction/ maintenance | | | | | | | |
| h. operators/laborers | | | | | | | |

9. In the past 2 years, which organizations have provided training to your organization's employees. **Please check** the providers for each of the listed occupational groups.

| | managers/ administrators | professional/ technical | sales | clerical/admin. | service | production | construction/ maintenance | operators/ laborers |
|---|---|---|---|---|---|---|---|---|
| a. in-house training department | | | | | | | | |
| b. outside training vendors/consultants | | | | | | | | |
| c. industry or trade association | | | | | | | | |
| d. professional association | | | | | | | | |
| e. chamber of commerce | | | | | | | | |
| f. labor union | | | | | | | | |
| g. public job training program | | | | | | | | |
| h. apprenticeship program | | | | | | | | |
| j. private vocational school | | | | | | | | |
| k. community college | | | | | | | | |
| l. 4-year college or university | | | | | | | | |
| m. other (please describe) | | | | | | | | |

10. If your organization uses schools, community colleges, or public training programs to train new or existing employees, skip to question 11.
If your organization has **not** used schools, community colleges, or public training programs to train new or existing employees, which of the following are reasons why? **Circle the number** to indicate for each if this "is a reason" or "not a reason."

| | is a reason | is not a reason |
|---|---|---|
| a. not aware that this possibility existed | 1 | 2 |
| b. not aware of whom to approach for help | 1 | 2 |
| c. the cost would be too high | 1 | 2 |
| d. these organizations have not been responsive to our needs in the past | 1 | 2 |
| f. our training needs are too unique or specialized | 1 | 2 |
| g. qualified instructors do not exist for our training needs | 1 | 2 |
| h. our organization conducts its own formal training | 1 | 2 |
| i. other (please describe) _____ | 1 | 2 |

11. How does your organization handle "getting the work done" while employees are attending training? **Check all that apply.**

a. ____ stop production or service during training
b. ____ hire temporary workers during training
c. ____ train after work hours and weekends
d. ____ cut back production or service
e. ____ tuition reimbursement
f. ____ time release from work without pay
g. ____ time release from work with pay
h. ____ other (please describe) _____

12a. Does your organization track training expenditures?

❑ YES - continue ❑ NO - skip to question 13a

12b. Does your organization have a formal budget for training that clearly separates training from other costs?

❑ YES - continue ❑ NO - skip to question 12d

12c. What expenses are included in the formal training budget? (Please list.)

_____

_____

12d. What of the following units of measure is used for tracking training expenditures? What is the most recent figure available? If unit of measure is unknown, **please check** here _____.

| Unit of measure | Figure |
|---|---|
| percent of payroll * | _____ % |
| percent of gross revenue/sales | _____ % |
| cost per employee | $ _____ |
| other unit (please describe)_____ | |

* *NOTE: To calculate percentage of payroll, please divide training expenditures by the total wages and benefits for employees and multiply this number by* 100.

13a. Has your organization ever worked with other businesses in your industry to establish a joint training effort? (An effort by two or more companies to develop and conduct training as a group to share costs.)

❑ YES - continue ❑ NO - skip to question 13c

13b. What kind of program has been established? Please describe, then skip to question 14.

_____

_____

_____

13c. Which of the following are reasons why your organization has **not** worked with businesses to establish a joint training effort? **Check all that apply.**

a. _____ not aware of this type of effort
b. _____ don't have the time
c. _____ don't see the value in this activity
d. _____ other businesses viewed as competitors
e. _____ attempted it but other employers are not interested
f. _____ training needs of other companies are different
g. _____ there are no similar businesses in our area
h. _____ not in contact with other businesses in the industry
i. _____ concerned about anti-trust violations
j. _____ other (please list) _____

14. In general, how much difficulty do you have recruiting and hiring qualified workers for each of the following employee groups? **Please circle the number** to indicate the degree of difficulty.

| | no difficulty | little | some | a great deal |
|---|---|---|---|---|
| a. managers/administrators | 1 | 2 | 3 | 4 |
| b. professional/technical | 1 | 2 | 3 | 4 |
| c. sales | 1 | 2 | 3 | 4 |
| d. clerical/admin. | 1 | 2 | 3 | 4 |
| e. service | 1 | 2 | 3 | 4 |
| f. production | 1 | 2 | 3 | 4 |
| g. construction/maintenance | 1 | 2 | 3 | 4 |
| h. operators/laborers | 1 | 2 | 3 | 4 |

15. When your organization needs new employees, which of the following do you do when there is a shortage of qualified employees? Please indicate **the top three** practices for your organization with 1 being the most preferable and 3 the least preferable, then check any additional practices your organization may have used.

a. ___ recruit qualified employees from local area
b. ___ recruit qualified employees from other parts of the state
c. ___ recruit qualified employees from out of state
d. ___ recruit qualified employees from competitors
e. ___ retrain and promote in-house employees
f. ___ hire less qualified employees and train them
g. ___ make the best of it with less qualified employees
h. ___ cut back production or service levels
i. ___ hire fewer employees than really needed and pay overtime
j. ___ hire temporary employees
k. ___ increase wages
l. ___ other (please describe)_____

16. What are the most common reasons for rejecting applicants for non-managerial positions? Please **circle the number** to indicate how often the following reasons occur.

| | never | seldom | sometimes | often |
|---|---|---|---|---|
| a. inadequate life skills | 1 | 2 | 3 | 4 |
| b. inadequate writing/reading skills | 1 | 2 | 3 | 4 |
| c. inadequate verbal communication skills | 1 | 2 | 3 | 4 |
| d. inadequate calculation skills | 1 | 2 | 3 | 4 |
| e. inadequate computer/technical skills | 1 | 2 | 3 | 4 |
| f. no work experience | 1 | 2 | 3 | 4 |
| g. no high school diploma or GED | 1 | 2 | 3 | 4 |
| h. this candidate will not adapt to work environment | 1 | 2 | 3 | 4 |
| i. failure to pass medical/drug test | 1 | 2 | 3 | 4 |
| j. other (please describe)_____ | 1 | 2 | 3 | 4 |

17. What is the average age of an entry-level worker in a permanent, full-time position in your organization? Your best estimate is fine. _____

18. Please review the following list of business practices. **Circle the number** to indicate your business practice. **1** = we have implemented or incorporated this practice; **2** = we are considering this practice; **3** = we are not considering this practice.

| | implemented | considering | not considering |
|---|---|---|---|
| a. total quality management | 1 | 2 | 3 |
| b. continuous improvement program | 1 | 2 | 3 |
| c. customer satisfaction program | 1 | 2 | 3 |
| d. statistical process control, just-in-time, or similar techniques | 1 | 2 | 3 |
| e. benchmarks | 1 | 2 | 3 |
| f. skills standards | 1 | 2 | 3 |
| g. employee involvement program | 1 | 2 | 3 |
| h. cross training | 1 | 2 | 3 |
| i. job retraining | 1 | 2 | 3 |
| k. ongoing training for front-line workers | 1 | 2 | 3 |
| l. employee awareness of organization values, goals, mission | 1 | 2 | 3 |
| m. shared responsibility by workers and managers for quality | 1 | 2 | 3 |
| n. other (please describe) _____ | 1 | 2 | 3 |

19. Has your organization implemented any employee involvement programs or programs to enhance employee performance? See below for examples of employee involvement programs.

❑ YES- continue ❑ NO - skip to question 20

Please **circle the number** to indicate for each program implemented how successful do you think each program has been.

| | very successful | moderately successful | too early to tell | unsuccessful |
|---|---|---|---|---|
| a. quality circles | 1 | 2 | 3 | 4 |
| b. total quality management program | 1 | 2 | 3 | 4 |
| c. labor-management cooperative | 1 | 2 | 3 | 4 |
| d. self-directed work teams | 1 | 2 | 3 | 4 |
| e. all-salaried pay systems | 1 | 2 | 3 | 4 |
| f. performance-based pay | 1 | 2 | 3 | 4 |
| g. profit sharing | 1 | 2 | 3 | 4 |
| h. gain sharing | 1 | 2 | 3 | 4 |
| i. non-monetary awards for performance | 1 | 2 | 3 | 4 |
| j. other (please describe)_____ | 1 | 2 | 3 | 4 |

20. Has your organization experienced employee skill deficiencies in the process of implementing the following changes? **Indicate** Yes , No or Does not apply for each change your organization has implemented.

a. ____ self-directed team or work team
b. ____ reorganizing work tasks or activities
c. ____ quality program
d. ____ flexible production systems
e. ____ new technology implemented
f. ____ statistical process control
g. ____ just-in-time inventory
h. ____ other (please describe)_____

_____

21. Which of the following benefits do you offer to these employee groups?
**Check all that apply.**

| | | managerial | non-managerial |
|---|---|---|---|
| a. | health care | _____ | _____ |
| b. | child care | _____ | _____ |
| c. | transportation subsidy | _____ | _____ |
| d. | flexible work hours | _____ | _____ |
| e. | job sharing | _____ | _____ |
| f. | career counseling | _____ | _____ |
| g. | flexible, cafeteria-style benefits | _____ | _____ |
| h. | employee stock ownership plan | _____ | _____ |
| i. | profit sharing | _____ | _____ |
| j. | life insurance | _____ | _____ |
| k. | retirement plan | _____ | _____ |
| l. | two weeks vacation time | _____ | _____ |
| m. | more than two weeks vacation time | _____ | _____ |
| n. | other (please describe) | _____ | _____ |
| | _____ | _____ | _____ |
| o. | other (please describe) | | |
| | _____ | _____ | _____ |

22. Does your organization have any skill standards for employees?

❑ YES - continue ❑ NO - skip to question 23

22a. Are these written standards?

❑ YES - continue ❑ NO - skip to question 23

22b. Are these industry-based standards?

❑ YES - continue ❑ NO - continue

23. Has your organization participated in setting skill standards for your industry?

❑ YES - continue ❑ NO - skip to question 24

23a. How are skill standards identified for your industry?

_____

24. If your organization is a school, community college, or other educational institution, please skip to question 26. Is your organization participating in local initiatives to improve the quality of the education system? Is your organization interested in participating in such initiatives? **Please check the appropriate space for each item.**

| | participating | not participating | would like to participate |
|---|---|---|---|
| a. adopt-a-school program | ____ | ____ | ____ |
| b. business-education partnership | ____ | ____ | ____ |
| c. employees volunteer as tutors | ____ | ____ | ____ |
| d. loaned executives | ____ | ____ | ____ |
| e. curriculum development assistance | ____ | ____ | ____ |
| f. structured work experience for high school students | ____ | ____ | ____ |
| g. community college work study cooperative program | ____ | ____ | ____ |
| h. youth apprenticeship program | ____ | ____ | ____ |
| i. adult apprenticeship program | ____ | ____ | ____ |
| j. summer job program | ____ | ____ | ____ |
| k. job guarantees for successful students | ____ | ____ | ____ |
| l. college education fund for successful students | ____ | ____ | ____ |
| m. teacher internship at your organization | ____ | ____ | ____ |
| n. onsite training for high school students | ____ | ____ | ____ |
| o. mentor program | ____ | ____ | ____ |
| p. other (please describe) | | | |
| _____ | ____ | ____ | ____ |

25. In which of the ways listed below has your organization been represented or been involved with local or regional educational and training organizations within the last three years? **Check all that apply.**

a. _____ represented on a school advisory group
b. _____ represented on a community college advisory group
c. _____ represented on a community college board or committee
d. _____ represented on a PIC (private industry council)
e. _____ represented on a 21st Century School Council
f. _____ operated an apprenticeship program
g. _____ participated through Education Committee of business or industry group
h. _____ represented on a JSEC (job service employment committee)
i. _____ involved with a community-based organization's job training program
j. _____ represented on a university or college advisory group
k. _____ made donations to an educational organization
l. _____ other (please describe) _____

26. What should be the state's three highest priorities in improving the job skills of non-managerial workers? **Choose the top three** out of the following list and use 1, 2 and 3 to indicate your priorities with 1 being the highest and 3 the lowest.

___ improve high school education
___ provide for successful transition from school to work
___ expand/improve training in public job training programs
___ expand/improve technical training at community college
___ expand/improve professional/technical (vocational) programs in high schools
___ expand life skills training in high school
___ expand basic skills training in public job training programs
___ expand apprenticeships or workplace learning programs to more occupations
___ organize job training efforts for specific industries
___ assist businesses in providing formal training
___ better coordinate community college classroom instruction and training in the workplace
___ don't know
___ other (please describe)_____

27. Do you have any other comments?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

***Thank you for your time and cooperation.***

***A copy of the Oregon Employer Survey Report will be mailed to you later this year.***



***6/92***

State of Oregon
Employment Department

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